Raquel J. Webster
Senior Counsel

December 23, 2020

BY HAND DELIVERY & ELECTRONIC MAIL

Luly E. Massaro, Commission Clerk
Rhode Island Public Utilities Commission
89 Jefferson Boulevard
Warwick, RI 02888

RE: National Grid's Proposed FY 2022 Gas Infrastructure, Safety, and Reliability Plan
Docket No. 5099
Re-Formatted Testimony of Amy Smith and Nathan Kocon

Dear Ms. Massaro:

On Friday, December 18, 2020, National Grid[1] submitted its proposed Gas Infrastructure, Safety, and Reliability Plan for fiscal year 2022.

The Company is resubmitting the joint testimony of Amy S. Smith and Nathan Kocon because it recently became aware that there was text that was missing and truncated from the joint testimony at the bottom of the Q & A on Bates page 17 during conversion and production to the Adobe PDF version. The testimony of Melissa A. Little and Tomi A. Uyehara were unaffected.

The Company respectfully requests that the Commission replace the prior version of the joint testimony and insert the re-formatted version into Book 1, which was delivered to the Commission by the Company's production vendor on Monday, December 21, 2020.

Thank you for your attention to this matter. If you have any questions, please contact me at 781-907-2121.

Very truly yours,

Raquel J. Webster

Enclosures

cc: Leo Wold, Esq.
Al Mancini, Division
John Bell, Division
Rod Walker, Division

[1] The Narragansett Electric Company d/b/a National Grid.

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THE NARRAGANSETT ELECTRIC COMPANY
d/b/a NATIONAL GRID
RIPUC DOCKET NO. 5099
RE: FY 2022 GAS INFRASTRUCTURE,
SAFETY, AND RELIABILITY PLAN
WITNESSES: AMY SMITH & NATHAN KOCON

DIRECT JOINT TESTIMONY

OF

AMY SMITH

AND

NATHAN KOCON

December 18, 2020

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I. INTRODUCTION AND QUALIFICATIONS

Amy Smith

Q. Mrs. Smith, please state your name and business address.

A. My name is Amy Smith. My business address is 40 Sylvan Road, Waltham, MA 02451.

Q. Mrs. Smith, by whom are you employed and in what capacity?

A. I am employed by National Grid USA Service Company, Inc. ("Service Company") as the Director, New England Jurisdiction. I am the New England state jurisdictional lead for all gas system issues, including those related to the capital investment strategies for Narragansett Electric Company, d/b/a National Grid ("National Grid" or the "Company"). In my role, I work closely with the Rhode Island Jurisdictional President and Jurisdiction staff on all local gas issues related to the Rhode Island gas system in the Rhode Island service territory. My responsibilities include working with regulators on issues related to the gas system, developing strategies to support Company objectives regarding investment in the gas system, and providing testimony regarding capital investments in National Grid's gas system during state regulatory proceedings.

Q. Mrs. Smith, please describe your educational background and professional experience.

A. In 1982, I graduated from Simmons College with a Bachelor of Arts in Economics and

Mathematics. In 1991, I joined Boston Gas Company (now National Grid) as an analyst in Gas Supply Planning. Since that time, I have held a variety of positions in Rates and Regulation, Performance Measurement, Credit and Collections, Customer Regulatory Relations, Emergency Dispatch, Gas Resource Planning, Network Strategy, Construction, Gas Pipeline Safety and Compliance and Gas Investment, Resource and Rate Case Planning. I assumed my current position on April 1, 2019. In addition, from 1984 to 1989, I worked for the Massachusetts Department of Public Utilities (the "Department").

Q. Mrs. Smith, have you previously testified before the Rhode Island Public Utilities Commission ("PUC")?

A. Yes. In 2020, I testified before the PUC in support of the Company's 2020 Distribution Adjustment Clause filing in Docket 5040. In 2019 and 2020, I filed testimony with the PUC in support of the Company's Reconciliation of the Fiscal Year ("FY") 2019 Infrastructure, Safety, and Reliability Plan. In 2020, I filed testimony with the PUC in support of the Company's FY 2021 Infrastructure, Safety, and Reliability Plan Proposal. In 2011 and 2012, I testified at the PUC in support of the Company's Gas Infrastructure, Safety, and Reliability Plans. In 2011, I testified at a technical session in support of the Company's first Gas ISR Plan and presented the Company's five-year capital plan along with an explanation of how the existing Accelerated Replacement Program ("ARP") would be closed out and transitioned to the new Gas ISR Plan (Docket 4219). In 2012, I

also testified at a technical session in support of the Company's Gas ISR Plan for FY 2013 and addressed regulatory reporting requirements. (Docket 4306).

In Massachusetts, before the Department, and on behalf of Boston Gas Company ("Boston Gas") and Colonial Gas Company ("Colonial Gas"), each d/b/a National Grid (collectively National Grid or the MA Companies), I have filed testimony and related exhibits in support of capital investment and gas safety and reliability proposals in the MA Companies' last two base rate increase proceedings, dockets D.P.U. 17-170 and D.P.U 10-55, respectively. I also filed testimony in support of the MA Companies' Targeted Infrastructure Replacement Factor filing in docket D.P.U. 11-36. In 2008, I testified at the Department regarding low-income credit and collections practices in docket D.P.U 08-4. In 2005, I testified at a technical session at the Department in support of the MA Companies' service quality performance in docket D.P.U. 04-116. I have also testified before the New Hampshire Public Utilities Commission.

<u>Nathan Kocon</u>

Q. Mr. Kocon, please state your name and business address.

A. My name is Nathan Kocon. My business address is 360 Melrose Street, Providence, RI 02907.

Q. Mr. Kocon, by whom are you employed and in what capacity?

A. I am employed by the Service Company as the Principal Analyst, Rhode Island Jurisdiction. I support the Rhode Island jurisdiction for all gas system issues, with a focus on those related to the capital investment strategies for National Grid. In my role, I work closely with the Rhode Island Jurisdictional President and Jurisdiction staff on all local gas issues related to the Rhode Island gas system in the Rhode Island service territory. My responsibilities include working with regulators on issues related to the gas system, developing strategies to support Company objectives regarding investment in the gas system, and providing testimony regarding capital investments in National Grid's gas system during state regulatory proceedings.

Q. Mr. Kocon, please describe your educational background and professional experience.

A. In 2005, I graduated from Northeastern University with a Bachelor of Science in Business Administration with a dual concentration in Finance and Marketing. In 2013, I joined National Grid as a Lead Analyst in the Process and Performance group within the Customer Organization. Since that time, I completed the Company's Performance Excellence Practitioner, Senior Practitioner, and Coach Practitioner Trainings and led several process and performance improvement initiatives. I assumed my current position in February 2019. In addition, from 2010 to 2013, I worked for Ernst & Young in the Financial Investigations

and Dispute Services – Government Contract Services group. I am also a Certified Fraud Examiner.

Q. Mr. Kocon, have you previously testified before the PUC?

A. No.

II. PURPOSE OF TESTIMONY

Q. What is the purpose of your joint testimony?

A. The purpose of our testimony is to describe the Company's proposed FY 2022 Gas ISR Plan ("Gas ISR Plan" or "Plan").[1] Through our testimony, we present the Company's Gas ISR Plan, which details the work the Company expects to complete under the Plan and the anticipated capital investments associated with that work. Company Witness Melissa A. Little is providing testimony on the calculation of the revenue requirement associated with the Company's Plan, and Company Witness Tomi Uyehara is providing testimony relative to (1) how the Company calculated the rate design for the ISR mechanism; (2) the calculation of the ISR factors; and (3) the customer bill impacts of the proposed ISR factors.

[1] The Company is required by statute to annually file an infrastructure, safety, and reliability spending plan with the PUC for review and approval. *See* R.I. Gen. Laws § 39-1-27.7.1(d). In addition to budgeted spending, the annual Gas ISR Plan must contain a reconcilable allowance for the Company's anticipated capital investments and other spending for the upcoming fiscal year. *See* R.I. Gen. Laws § 39-1-27.7.1(c)(2). For FY 2022, the Company's fiscal year is for the period of April 1, 2021 through March 31, 2022, so the Plan would be effective April 1, 2021.

III. OVERVIEW

Q. How did the Company prepare the Gas ISR Plan?

A. The Company prepared the Gas ISR Plan and submitted it to the Rhode Island Division of Public Utilities and Carriers ("Division") for review on October 6, 2012 (Sections 1&2) and October 9, 2020 (Sections 1, 2, 3, & 4).[2] On October 26, 2012 and October 27, 2020, the Company met with the Division regarding the Plan and subsequently responded to informal discovery requests from the Division about various components of the Plan. The Company and the Division continued to collaborate regarding the proposed Plan on several occasions, including subsequent meetings on November 23, December 2, and December 9, 2020. The Company also responded to a set of formal and several informal supplemental data requests from the Division. The Division has indicated general concurrence with the proposed Gas ISR Plan, including the programs and projects outlined in the Plan, and will continue to review the Plan and its costs after filing, consistent with prior Gas ISR Plan filings. Overall, the Gas ISR Plan will allow the Company to meet state and federal safety and reliability requirements, maintain its gas

[2] R.I. Gen. Laws § 39-1-27.7.1(d) requires that the Company and the Division work together over the course of 60 days in an attempt to reach an agreement on a proposed plan, which is then submitted to the PUC for review and approval within 90 days.

distribution system in a safe and reliable condition, and examine potential infrastructure solutions specific to Aquidneck Island to ensure that, in the near-term and long-term, customers on the island have access to the energy they need to heat their homes and run their businesses. The Plan has been developed to improve the safety and reliability of the Company's gas system for the immediate and long-term benefit of Rhode Island's natural gas customers.

Q. What is the Gas ISR Plan designed to accomplish?

A. The Gas ISR Plan is designed to establish a spending plan, together with a reconcilable allowance for the anticipated capital investments and other spending needed to maintain and upgrade the Company's gas delivery system, such as proactively replacing leak-prone gas mains; upgrading the system's plant, pressure regulating systems, and piping; responding to emergency leak situations; and addressing conflicts that arise out of public works projects. The Plan attempts to attain the Company's safety and reliability goals through a cost-effective, coordinated work plan. The level of work that the Plan provides will sustain and enhance the safety and reliability of the Rhode Island gas pipeline infrastructure and directly benefit Rhode Island gas customers. The Company now

submits the Plan to the PUC for review and approval in accordance with Rhode Island law.[3]

Q. Are you sponsoring any exhibits through your testimony?

A. Yes. The proposed Gas ISR Plan is attached as Exhibit 1 to our joint testimony. The Plan is organized as follows:

Section 1 – Introduction and Summary
Section 2 – Gas Capital Investment Plan (including major categories of work)
Section 3 – Revenue Requirement Calculation
Section 4 – Rate Design and Bill Impacts
Schedule 1 – 2019 System Integrity Report

Our testimony focuses on Sections 1 and 2 of the Plan. As noted earlier, Ms. Little is sponsoring the revenue requirement calculation included in Section 3 of the Plan; and Mr. Uyehara is sponsoring the rate design and bill impacts included in Section 4 of the Plan.

[3] *See* R.I. Gen. Laws § 39-1-27.7.1(d).

Q. What types of infrastructure, safety, and reliability work does the Gas ISR Plan include?

A. The Gas ISR Plan seeks not only to maintain the Company's distribution system, but also to proactively upgrade the system's condition to address problems before they arise. A safe and reliable gas delivery system in Rhode Island is essential to the health, safety, and well-being of its citizens, and for maintaining a healthy economy and continuing to attract new residents and businesses to Rhode Island. In 2008, the PUC embarked on a course of addressing Rhode Island's aging gas infrastructure with the establishment of the Accelerated Replacement Plan. The Company filed its first Gas ISR Plan on December 20, 2010 for FY 2012. In addition to the type of infrastructure, safety, and reliability work performed under the Accelerated Replacement Plan, the Gas ISR Plan contains spending related to safety and reliability for Public Works, Mandated programs, and Reliability programs, including Gas Expansion. Included in the Plan document is a description of the Company's proposed budget for capital investment for FY 2022 and a capital forecast for FY 2023 through FY 2026. As agreed with the Division in the FY 2020 ISR Plan, given the magnitude of the scope and cost for the Southern Rhode Island Gas Expansion Project ("Southern RI Gas Expansion"), the Company will continue to manage any deviations from the FY 2022 Southern RI Gas Expansion Project budget separately from the overall Discretionary budget under the Plan. If deviations do occur with the Southern RI Gas Expansion Project, the Company will neither advance nor delay

other Discretionary work to compensate for those changes in FY 2022 costs. This year's Plan also includes a section describing the history and effectiveness of the Gas ISR Plan and a copy of the most recent System Integrity Report, as ordered by the PUC in Docket No. 4781.

IV. CAPITAL INVESTMENT PLAN

Q. What levels of spending are proposed in the Gas ISR Plan?

A. For FY 2022, the Company proposes to invest a total of $180.15 million, including $40.83 million for Non-Discretionary capital expenditures; $135.47 million for Discretionary capital expenditures, which includes $19.44 million for the Southern RI Gas Expansion Project; and $3.84 million for incremental curb to curb paving costs estimated in accordance with the RI paving law. Beginning in FY 2022, the incremental cost of $1.52 million for PE Stamps is allocated amongst the applicable ISR categories and is no longer a stand-alone line item. The Plan is broken down into categories of Non-Discretionary, Discretionary, and Incremental Paving Costs, each of which contain programs designed to maintain the safety and reliability of the Company's gas delivery infrastructure. Non-Discretionary programs include work required by legal, regulatory code, and/or agreement, or a result of damage or failure, with limited exceptions. Discretionary programs are not required by legal, regulatory code, and/or agreement, with limited exceptions. The Incremental Paving Costs are broken out separately for tracking

purposes, but they support work in both the Non-Discretionary and Discretionary categories.

Q. What levels of spending is the Company proposing for Non-Discretionary programs?

A. For each Non-Discretionary program category in the Gas ISR Plan, the Company proposes the following levels of spending:

- $19.20 million net investment for Public Works programs, including $20.61 million in capital spend and $1.41 million in reimbursements;
- $21.38 million for Mandated Programs (i.e., Corrosion, Purchase Meter Replacements, Reactive Leaks (Cast Iron Joint Encapsulation/Service Replacement), Service Replacement (Reactive) – Non-Leak/Other, Main Replacement (Reactive) – Maintenance (including Water Intrusion), Low Pressure System Elimination (Proactive), Transmission Station Integrity; and
- $0.25 million for Damage/Failure programs.

Q. What levels of spending is the Company proposing for Discretionary programs?

A. For each Discretionary program category in the Gas ISR Plan, the Company proposes the following levels of spending:

- $75.03 million for the Proactive Main Replacement program (i.e., Proactive Main Replacement, Large Diameter, and Atwells Avenue project);
- $0.35 million for the Proactive Service Replacement program;

- $40.66 million for Gas System Reliability, including work relative to System Automation, Heater Installation Program, Pressure Regulating Facilities, Allens Avenue Multi Station Rebuild, Take Station Refurbishment, Valve Installation/Replacement, Gas System Reliability Enhancement, Instrumentation and Regulation – Reactive, Distribution Station Over Pressure Protection, Liquefied Natural Gas (LNG) facilities, Aquidneck Island Long Term Capacity Options, Replace Pipe on Bridges, Access Protection Remediation, and Tools and Equipment; and
- $19.44 million for the Southern Rhode Island Gas Expansion Project (Southern RI Gas Expansion).

Q. What level of spending is the Company proposing for the Operation and Maintenance ("O&M") Expenses category?

A. The Company does not propose any O&M Expenses in the Gas ISR Plan for FY 2022.

Q. What levels of spending is the Company proposing for the Incremental Costs category?

A. For the Incremental Costs category in the Gas ISR Plan, the Company proposes the following levels of spending:

- $3.84 million for Incremental Curb to Curb Paving Costs for all ISR Work, excluding Atwells Avenue, Allens Avenue Multi Station, and Southern RI Gas Expansion which have any anticipated incremental paving costs included directly in the project budgets.

  Note: For FY 2022, the budgeted costs of $1.52 million for Professional Engineering Stamps have been allocated the applicable ISR categories rather than a stand-alone line item.

The Company will continue to file quarterly reports with the Division and PUC detailing the progress of its Gas ISR Plan programs for FY 2022.

Q. Explain why the company has included incremental curb to curb paving costs in this plan.

A. In the Summer of 2019, the Governor signed the Rhode Island Utility Fair Share Roadway Repair Act into law. The Act requires public utilities or utility facilities to repave and repair roadways that they alter or excavate from curb to curb or as required in accordance with state or municipal utility permit requirements. Historically, the Company's typical area of pavement restoration for work in roadways has been isolated to the side of the street where the work occurred, an approximately 8-11 feet width off the curb and the length of the trench. The Company estimates that the paving law will result in $3.84 million in incremental paving costs for FY 2022 versus the historical standard paving. The 3.84 million is the estimate for Incremental Curb to Curb Paving Costs for all ISR Work, excluding Atwells Avenue, Allens Avenue Multi Station, and Southern RI Gas Expansion which have any anticipated incremental paving costs included directly in the project budgets.

Q. The Company has included $3.84 million for incremental curb to curb paving costs for all ISR Work (excluding Atwells Avenue, Allens Avenue Multi Station, and Southern RI Gas Expansion). Please explain how this cost was estimated.

A. The incremental curb to curb paving cost estimate of $3.84 million is comprised of two cost categories: Main Installation for $3.02 million and Patches for $0.82 million. A summary of the total estimate for the FY 2022 Gas ISR Incremental Curb to Curb Paving Costs is presented in the table below. For the Main Installation incremental cost estimate, the Company estimated the current final restoration paving width to be 10.28 feet or 6,033 square yards of paving per mile, and the average curb to curb restoration will be 26 feet or 15,253 square yards per mile. Based on a cost per square yard of $14.00 for the FY 2022 anticipated average paving, the cost per mile is approximately $0.08 million. When the final restoration width is extended to curb-to-curb, the Company anticipates that additional costs of approximately 20% will be incurred for incremental work such as driveway aprons, line striping, drainage, sewer, intersection sensors and other miscellaneous work. Therefore, the estimated cost per mile for curb to curb restoration is $0.26 million per mile, resulting in an incremental cost per mile of $0.17 million to extend paving to curb to curb. After deducting the estimated miles that are already paved curb to curb and included in the average width of 10.28 feet, the Company estimates that the incremental cost of paving curb to curb will be $3.02 million.

For final restoration patches, the Company estimates that 3,429 ISR patches will be completed in FY 2022. The cost of a standard patch for FY 2022 is estimated to be approximately $1,600. Based on the state and municipal final restoration permit requirements in FY 2021, the Company estimates that for 15% of the patches, the state and municipal permits will require patch areas that are larger than a current standard patch. The Company anticipates those patch widths will be extended to curb to center line and curb to curb and, therefore, the average patch cost is anticipated to be $3,200 per patch, resulting in an incremental cost per patch of $1,600 or $0.82 million for all final restoration patches. Please see following table.

FY 2022
Incremental Curb to Curb Paving Costs
Main Installation and Patches

Planned Main Installation Paving Miles	48.5

*Note the Average of 10.28ft Restoration includes ~14% which is already paved curb to curb

Main Installation Paving	Sq Yards/ Mile	Cost/ Sq Yd	Added Costs %**	Cost/Mile	% Weight	Total Cost for 48.5 Miles	Budget
Average 10.28ft Restoration*	6,033	$ 14.00		$ 84,459	64%	$ 2,608,015	
Curb to Curb 26 ft Restoration	15,253	$ 14.00	20%	$ 256,256	36%	$ 4,502,675	
Minus Average Restoration Costs	6,033	$ 14.00		$ 84,459	36%	$ 1,484,033	
Total Incremental Paving Costs - Main Installation						$ 3,018,642	**$3,019,000**

**Added Costs for paving curb to curb such as driveway aprons, striping, drainage, sewer, intersection sensors, etc.

Planned ISR Patches	3,429

Patching Paving Costs	Average Cost/Patch	% Weight	Total Cost for 3,429 Patches	Budget
Standard	$ 1,600	85%	$ 4,663,440	
Total Cost: Mix of curb to curb and curb to center @ 15% adoption rate	$ 3,200	15%	$ 1,645,920	
Minus Standard Patch Restoration Costs	$ 1,600	15%	$ 822,960	
"Curb to Curb" minus Standard = Incremental Cost/Patch			$ 822,960	**$ 823,000**

FY 2022 Gas ISR Incremental Paving Costs by Category	Incremental Paving Cost	Budget
Main Installation - 18 miles	$ 3,018,642	$ 3,019,000
Patches - 3,429 @ 15% (mix curb to curb and curb to center)	$ 822,960	$ 823,000
Total FY 2022 ISR Incremental Paving Costs	**$ 3,841,602**	**$3,842,000**

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Q. Please explain why the Company has included $4.90 million in the FY 2022 ISR to examine Aquidneck Island Long Term Capacity Options.

A. As detailed in the September 2020 Aquidneck Island Long-Term Gas Capacity Study prepared and distributed by National Grid[4], the Company has identified the need to address gas capacity constraint and vulnerability needs facing Aquidneck Island. In light of the study's findings and the feedback received via extensive stakeholder engagement, the Company has determined that the right solution for Aquidneck Island is a "hybrid" solution that relies on both new infrastructure and non-infrastructure options (i.e., incremental gas energy efficiency, gas demand response, and heat electrification). Notably, the extensive stakeholder feedback received to date favors replacing the current portable LNG site at Old Mill Lane with non- infrastructure options; however, the "hybrid" solution is necessary to enable the Company to end its reliance on the portable LNG operations at Old Mill Lane on a reasonable timescale for addressing the concerns of local residents affected by those operations. The Company is proposing to include only costs associated with pursuing infrastructure options in the FY 2022 ISR. The Company intends to pursue the non-infrastructure component of the "hybrid" solution via the System Reliability Procurement ("SRP") process.

[4] https://www.nationalgridus.com/aquidneck-long-term-gas-capacity-study

In FY 2022, the Company plans to spend $4.90 million to examine three potential infrastructure solutions specific to Aquidneck Island to ensure that, in the near-term and long-term, customers on the island have access to the energy they need to heat their homes and run their businesses. The money allocated in the ISR will focus on site assessments, preparation for a main extension, and other project development activities related to three LNG options - (1) Portable LNG at a new site on Navy-owned property; (2) Permanent LNG Storage at a new site on Navy-owned property; and (3) use of an LNG barge for offshore storage and vaporization. Each of these solutions meet the criteria to be funded by the ISR because they require capital investment in the Company's gas system. The Company anticipates selecting the final infrastructure solution that is part of the hybrid option in FY 2022. National Grid's decision will be based on the technical assessment contained in the Aquidneck Island Long Term Capacity Report, the site review work conducted during FY2022, and the input of numerous stakeholders who have provided feedback on the proposed options. National Grid believes it is prudent to begin the site review for all three infrastructure options at this time to ensure that the Company has alternatives if our site review work determines that one or more of the potential infrastructure solutions cannot not move forward due to circumstances such as failure to receive all required permits, or difficulties identifying an acceptable route for the necessary main extension. Moreover, since the Company's decision must balance stakeholder feedback that includes local residents' concerns regarding continued

operation of the portable LNG at the Old Mill Lane location with the results of the Company's technical and financial assessments of the alternatives, advancing multiple options at this early stage will allow the Company to determine with greater certainty the solution that will achieve that objective at the lowest cost to the Company's customers. The Company anticipates that it will complete an assessment regarding which option(s) will remain for the potential future pathway for long term capacity for Aquidneck Island during FY 2022 with the benefit of additional information on the cost and feasibility of the options.

Q. How does the Company plan to treat the replacement of leak-prone pipe in Rhode Island in FY 2022?

A. To continue providing safe and reliable gas service to its Rhode Island customers, the Company's FY 2022 Plan includes the elimination or rehabilitation of a total of approximately 71.40 miles of leak-prone pipe (approximately 55.30 miles of proactive main replacement, 1.10 mile of rehabilitation work, 14 miles of public works replacement, and 1 mile of reinforcement work). The resulting abandonment target of approximately 70.30 miles for FY 2022 is an increase of approximately 9.30 miles compared to the FY 2021 ISR Plan and helps keep pace with the annual targets laid out in the 20-year Proactive Main Replacement program. The Company is proposing FY 2022 spending of $75.03 million for the Proactive Main Replacement program, which includes

\$3.85 million for the Large Diameter LPCI Program and \$4.00 million for the Atwells Avenue project, and \$18.80 million for the Public Works program. The value of and need for targeted spending on the replacement of leak-prone gas main is well-documented and is only increasing in importance as these facilities continue to age. In FY 2022, the Company is increasing the cast iron abandonment percentage to 70 percent of total leak-prone inventory, which is a 9 percent increase from the FY 2021 Plan. Cast iron represents 63 percent of the Company's total leak-prone pipe inventory. As illustrated on page 26 in the attached 2019 System Integrity Report, cast iron represented 86% of main leak repairs in 2019, which was a risk factor that impacted the decision to increase the planned percentage of cast iron to be abandoned. Additionally, with the Company's rollout of new Gas Business Enablement ("GBE") software, the Company was able to run an initial risk analysis on its entire system inventory of leak-prone pipe, which assisted with the development of the FY 2022 workplan. Further, based on recommendations from the Division, and as ordered by PUC in docket number 4996 on August 19, 2020, the Company adjusted the weighting of risk factors to place a greater weighting to leak-prone services and was factored into the development of the FY 2022 workplan. This continues to enable leak-prone services to be addressed primarily through the Proactive Main Replacement program, but now with a greater emphasis.

Q. What is the difference between installation miles and abandonment miles in relation to the replacement of leak-prone pipe?

A. Installation miles represent the units of new main that are required to be connected to the distribution system. Thus, installation miles represent the main driver for unit costs when combined with service relays and tie overs. Abandonment miles represent the total of the old leak-prone pipe that is retired or disconnected from the distribution system. In some instances, the existence of parallel leak-prone main provides the Company with the opportunity to install a single section of new main to abandon two sections of existing leak-prone main; the current FY 2022 workplan contains approximately 6.2 miles of parallel main to be abandoned (the FY 2021 workplan originally contained 3.9 miles of parallel main). This will result in annual leak-prone pipe replacement program targets where total abandonment miles exceed total installation miles.

Q. How do the FY 2022 leak-prone pipe replacement programs compare to the FY 2021 programs?

A. The Public Works program abandonment and installation miles will each increase by 1 mile, for a FY 2022 total of 14 abandonment and 14 installation miles. The table below provides a comparison of the Main Replacement – Leak Prone Pipe program between FY 2021 and FY 2022, including the estimated cost per mile for installed and abandoned main in urban, suburban, and rural areas. This table excludes the Large Diameter

program and the costs for the Atwells Avenue Main Replacement program because the nature of those programs are not suitable for year-over-year comparison. The average installation cost per mile for work in rural locations is estimated to increase from $0.97 million in FY 2021 to $1.30 million in FY 2022 because of the cost variability in the 13 projects selected for FY 2022. The average installation cost per mile for work in suburban locations is estimated to increase from $1.24 million in FY 2021 to $1.32 million in FY 2022. The average installation cost per mile for work in urban locations is estimated to increase from $1.77 million in FY 2021 to $1.96 million in FY 2022. Cost increases across all categories are primarily driven by contractor price increases.

FY 2021 (Plan as of 12/18/2019)				
	Installation Miles	Abandonment Miles	Installation Cost/Mile	Abandonment Cost/Mile
Rural	4.0	4.6	$0.97M	$0.84M
Suburban	21.9	23.6	$1.24M	$1.15M
Urban	16.4	19.2	$1.77M	$1.51M
Total	42.3	47.4	$1.42M	$1.27M

FY 2022 (Plan as of 11/30/2020)				
	Installation Miles	Abandonment Miles	Installation Cost/Mile	Abandonment Cost/Mile
Rural	5.0	6.7	$1.30M	$0.97M
Suburban	21.8	22.9	$1.32M	$1.26M
Urban	21.7	25.4	$1.96M	$1.67M
Total	48.5	55.1	$1.61M	$1.41M

Q. Have the Company's efforts at replacing leak-prone pipe been effective?

A. Yes. When the ISR program was first implemented in FY 2012, approximately 48 percent of the Company's gas distribution system in Rhode Island was comprised of leak-prone pipe. Through the FY 2020 Gas ISR Plan, the Company has abandoned a total of 507 miles of leak-prone pipe, which has contributed to an estimated reduction of 1,389 gas leaks. To monitor its system performance, the Company prepares an annual System Integrity Report. A copy of the most recent System Integrity Report (2019) is provided in Schedule 1 at the end of the Plan. The System Integrity Report provides historical data on leak receipts, leak repairs, open leaks, and inventory of mains and services. Additional data is provided around material type for each of the listed categories. The Company considers leak receipts to be an important system performance indicator regarding the effectiveness of its leak-prone pipe abandonment program. Since 2010, the Company has seen an overall downward trend on leak receipts, which would indicate that the ISR and ARP programs have contributed to this result. However, as the System Integrity Report shows, there has been a slight increase in leak receipts for the past three years particularly on case iron mains. Notably, variability in year-to-year annual leaks per mile will occur. Contributing factors include weather, public awareness, and overall system deterioration rates. The Company has taken note of the increase in cast iron leak activity and has increased the percentage of cast iron main in FY 2022, which was mentioned above.

Q. Has the Company made any modifications in the Plan related to the replacement of leak-prone pipe?

A. Yes. As mentioned above, the Company has increased the Proactive Main Replacement program cast iron abandonment percentage from 61 percent to 70 percent. Further, based on recommendations from the Division, and as ordered by PUC in docket number 4996 on August 19, 2020, the Company adjusted the weighting of risk factors and was factored into the development of the FY 2022 workplan. This continues to enable leak-prone services to be addressed primarily through the Proactive Main Replacement program, but now with a greater emphasis.

In addition, the FY 2022 Plan continues to include the Atwells Avenue Main Replacement project, which will be year three of a three-year project. In the 2017-2018 winter period, the Company experienced four main breaks on Atwells Avenue in Providence on 12-inch low pressure cast iron main installed in the 1870s. This main is located in one of the busiest streets within Providence, with a heavy concentration of restaurants. Upon completion of an integrity analysis, the initial project scope deemed it necessary to abandon over one mile of cast iron main and replace it with over one mile (5,505 feet) of high-density polyethylene ("HDPE") plastic pipe between FY 2020 and FY 2022. The project is broken into four segments: Segment 1A (forecast abandonment 1,565 feet, actual 2,784 feet); Segment 1B (forecast abandonment 1,565 feet, actual 2,915

feet); Segment 2 (forecast abandonment 965 feet, actual 965 feet); and Segment 3 (forecast abandonment 1,410 feet). In FY 2020, the Company addressed the highest risk segment, Segment 2. Final restoration for Segment 2 was completed in FY 2021. Thus far in FY 2021, the Company has completed the main installation and abandonment of Segments 1A and 1B. The Company forecasts that final restoration for Segments 1A and 1B are will be completed in the early Spring of calendar year 2021, with the costs of approximately $0.40 million being incurred in FY 2022. The main installation and abandonment of the final segment, Segment 3, will be completed in FY 2022 at a cost of $3.60 million. In total, for FY 2022, the Gas ISR Plan contains $4.00 million for the Atwells Avenue Main Replacement project. From FY 2019 through the anticipated close of the project in FY 2022, the total forecasted cost of the Atwells Avenue Main Replacement project is $10.40 million.

Q. The FY 2022 ISR includes $2.50 million for the Allens Avenue Multi Station Rebuild Project, do you anticipate this to be the final year of that multi-year project?

A. Yes. The Allens Avenue Multi Station Rebuild Project began in FY 2017 and is forecasted to be completed in FY 2022. In FY 2022, the Company plans to spend $2.50 million to complete the abandonment of eight pre-existing regulator stations and associated above-ground piping and structures in the central portion of the Allens Avenue

facility. From FY 2015 through the anticipated close of the project in FY 2022, the total forecasted cost of the Allens Avenue Multi Station Rebuild Project is approximately $29.61 million.

Q. What is the Southern Rhode Island Gas Expansion Project?

A. As was detailed in the FY 2020 Gas ISR, the Company has identified a need and has begun to build in increased capacity in the Southern Rhode Island service territory. The more than 30,000 customers in the Company's Southern Rhode Island service territory are served by almost 600 miles of distribution infrastructure, including approximately 77 miles of distribution main operating at pressures of 99 psig and above (the Southern Rhode Island Distribution Mains). As of 2018, growth forecasts indicated the maximum vaporization capacity at the Exeter LNG facility would be exceeded by calendar year 2019. This could have resulted in approximately 3,750 customers with below minimum pressures and them being at risk of losing service. In addition, several regulator station inlet pressures were predicted to fall below the minimum threshold, which would cause problems on the downstream pressure systems if the regulator stations cannot maintain their outlet set pressure. Increasing capacity in Southern Rhode Island mitigates the risk of customers in the region losing service in the event of an outage at the Exeter LNG facility. Moreover, many commercial customers seeking to expand existing and new operations in the Southern Rhode Island region, such as in and around Quonset Point,

cannot be served without this project. Without this project, the Company may have needed to impose a moratorium on all new gas service requests, as well as requests for expansion of existing gas service, to prevent service interruptions to existing customers. To address these capacity issues, in FY 2020, the Company began construction on a project to reinforce the Southern Rhode Island Distribution Mains by installing approximately five miles of new 20-inch steel distribution main parallel to the existing 12-inch distribution main located beneath Route 2 (a Rhode Island Department of Transportation right-of-way) through the towns of Warwick, West Warwick, and East Greenwich. The parallel distribution main is being constructed to be in-line inspected, initially operated at 99 psig, and designed for a maximum allowable operating pressure (MAOP) of 200 psig to meet future demand. The new distribution main will be placed in-service in phases between FY 2020 and FY 2022, with normal operation at 99 psig and the potential to operate at 200 psig after a district regulator station is installed in the future near South Road in East Greenwich. This project will also require work on existing regulator and take stations from FY 2021 through FY 2025. Based on current forecasts, each segment will add immediate growth capacity. Once all the segments are completed, the Company expects that approximately 1,100 dekatherms per hour of additional capacity will be available. The installation of a second distribution main will also improve the reliability of the Company's gas distribution system in the area by decreasing the Company's dependence on pressure support from the Exeter LNG facility

and by introducing redundancy that reduces the risk associated with a distribution main being out of service.

Q. What is the cost and scope of work for the Southern Rhode Island Project?

A. Between FY 2019 and FY 2025, the Southern RI Gas Expansion Project will complete work that is comprised of main installation, regulator station investment, and other upgrades and investments. For the main installation portion of the project, the Company plans to install approximately 5.1 miles of new 20-inche steel distribution main, beginning on Quaker Lane in Warwick, RI and ending at South Road in East Greenwich, RI. Between FY 2019 and FY 2023, the total estimated cost for the main installation work is currently $97.00 million. For FY 2022, the Company expects to spend a total of $14.91 million for the final phase of the main installation work.

In addition to the main installation work, the Gas Expansion project will also complete activities related to regulator stations, other upgrades, and investments at a total cost of $4.53 million. In FY 2022, barring any need for substantial repairs to the gas main, the Company plans to implement the maximum operating pressure ("MOP") increase from 150 psig to 200 psig for 5.2 miles (27,578) of existing main in Cranston and West Warwick. The Company will also continue preparation work, such as planning, engineering, and site planning, for a new regulator station near the existing Cowesett regulator station, along with project development and procurement of materials in

preparation for FY 2023 construction related to updates at the existing Cowesett regulator station. Additionally, in FY 2022 activities will include the final design, procurement of materials, and beginning of construction related to upgrades at the existing Cranston regulator station. Finally, the Company will also continue with project development and planning related to the future installation of a new regulator station, a launcher, and receiver to support in-line inspections of the 200 psig main. Between FY 2019 and FY 2025, the total estimated cost for activities related to regulator stations, other upgrades, and investments is currently $31.98 million. The total estimated cost for the Southern RI Gas Expansion Project from FY 2019 through the anticipated close of the project in FY 2025 is $128.98 million.

Q. Is the Company including any proposed "O&M expense in the FY 2022 Gas ISR Plan, as it has in prior Plans?

A. No.

Q. Does the FY 2022 Gas ISR Plan fulfill the statutory requirements for the safety and reliability of the Company's gas distribution system in Rhode Island?

A. Yes. The FY 2022 Gas ISR Plan establishes the capital investment in Rhode Island that is necessary to meet the needs of the Company's customers, together with a spending and

work plan to maintain the overall safety and reliability of the Company's Rhode Island gas distribution system.

V. CONCLUSION

Q. Does this conclude your testimony?

A. Yes.