



STATE OF RHODE ISLAND

DIVISION OF PUBLIC UTILITIES & CARRIERS
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TO: Rhode Island Public Utilities Commission

FROM: Alberico Mancini – Chief Regulatory Analyst, DPUC
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DATE: February 18, 2022

RE: Docket No. 5210 – National Grid’s FY 2023 Gas ISR Plan

I. INTRODUCTION

On December 17, 2021, the Division of Public Utilities and Carriers (“Division”) and The Narragansett Electric Company, d/b/a National Grid (“National Grid” or “Company”) agreed to a budget in the amount of \$175.655 M for the Company’s FY 2023 Gas Infrastructure, Safety and Reliability (“ISR”) Plan (the “Plan” or “FY 2023 Gas ISR Plan”). The agreed to budget was the product of a 3-month review by the Division which commenced when the Company submitted its initial proposal to the Division on October 4, 2021. This Memorandum details the Division’s evaluation process of the Plan, details the major reductions that were made to the Company’s proposed budget through that process for the final agreed to budget, and discusses the Company’s FY 2020 System Integrity Report.

II. THE DIVISION’S FY 2023 GAS ISR PLAN EVALUATION PROCESS

The Division’s investigation and review of the Plan included the following activities:

- On October 18, 2021, the Division participated in a virtual Walk-Through of the Plan with the Company. A copy of a syllabus of the Walk-Through is attached to this Memorandum.

- The Division propounded a First Set of Data Requests to National Grid on October 28, 2021 (National Grid responded to the Division’s data requests on a rolling basis over the following month).
- On December 10, 2021, the Division participated in a virtual meeting with the Company to discuss system safety and reliability trends, the current FY 2022 project progress, and to review projects within the single feed elimination and low-pressure elimination categories proposed by the Company. The Division also discussed the Company’s leak prone main and service inventory, specifically, data entry discrepancies within the ~45,000 leak prone services.
- On December 17, 2021, the Division participated in a virtual meeting with the Company to discuss costs associated with the Wampanoag Trail and Tiverton Take Station Heater Replacement Projects, future replacement of the Westerly Take Station, and the overall risk ranking of all pressure regulating stations.

In addition to the above activities, in June of 2021, the Division met with the Company to develop a plan that would improve the Company’s tracking of its meter inventory and purchasing strategies. The Company, along with the Division, developed that plan and the plan was filed with the Commission on June 30, 2021, in compliance with the requirement contained in Order No. 24042 in Docket No. 5099. That Order provides that “[t]he Company shall collaborate with the Division to develop and implement a plan that would improve the Company’s tracking of its meter inventory and its purchasing strategies and shall submit such plan to the Commission by June 30, 2021.”

III. THE DIVISION’S REVIEW AND ANALYSIS OF THE PLAN

Financial

In its October 4, 2021, FY 2023 Gas ISR Plan submission to the Division the Company proposed a total budget of \$189.459 M. Through the Division’s discussions with the Company regarding the submission, the Company adjusted the categories and/or programs of Reactive Leaks, Service Replacements (non-leaks), Transmission Station Integrity, Damage/Failure (Reactive), Proactive Main Replacement, Large Diameter Main Replacement Program, and the Atwells Avenue Main Replacement Project as follows:

- Reactive Leaks - was reduced by \$2.529 M based on an updated FY 2022 leak forecast.
- Service Replacements (non-leaks) – was reduced by \$0.370 M based on an updated FY 2022 forecast plus 5%.
- Transmission Station Integrity – was reduced by \$1.740 M based on a FY 2022 forecast and due to the fact that construction on some projects was deferred to FY 2024 as a result of greater Company focus on the Wampanoag Trail and Tiverton Heater Projects.

- Damage/Failure (Reactive) – was reduced by \$0.230 M due to minimal spend in the prior year.
- Proactive Main Replacement – was reduced by \$5.030 M based on decreased installation miles that was offset by increased FY 2022 carryover miles.
- Large Diameter Main Replacement Program - was reduced \$0.600 M by completing one project in FY 2022 and deferring two proposed cast iron lining projects to FY 2024.
- Atwells Avenue Main Replacement Project – was reduce \$0.173 M due to the fact that final restoration costs were moved to FY 2024.

The Company also adjusted five (5) categories within their Reliability Program including System Automation, the Wampanoag Trail and Tiverton Take Station Heater Replacement Project, Take Station Refurbishment, Distribution Station Over Pressure Protection, and Pipe Replacement on Bridges as follows:

- System Automation – was adjusted downwards by \$0.587 M based on the limited resources available to complete projects.
- Wampanoag Trail and Tiverton Take Station Heater Replacement – was reduced by \$0.363 M due to advanced spending in FY 2022.
- Take Station Refurbishment – was reduced by \$0.700 M based on limited resources available to complete projects.
- Distribution Station Over Pressure Protection – was decreased by \$0.383 M due to valves and materials having been purchased in FY 2022.
- Replace Pipe on Bridges – was adjusted downwards by \$1.100 M due to the Goat Island Bridge construction having been deferred to FY 2024.

As a result of the Company’s and the Division’s discussions, the original proposed budget was reduced by \$13.804 M to arrive at a final budget of \$175.655 M, which is an increase of \$2.409 M or 1.4% over last year’s approved FY 2022 budget of \$173.246 M. Working collaboratively to discuss the needs of the Company’s gas infrastructure, the Division and the Company were able to agree on a proposed final budget that focuses on improving the safety and reliability of Rhode Island’s gas infrastructure.

By far the largest adjustment (approximately \$5 M) is in the Company’s Proactive Main Replacement Program. The Division has been closely monitoring the program and observed that there were a significant number of carryover miles at the start of FY 2022. The Company classifies carryover miles as miles of gas main that have been installed but where the old leak prone main has yet to be abandoned. A gas main can only be abandoned when all services are transferred to the new main and all required cut-off connections are completed in order to purge and abandon the leak prone main. The average amount of carryover for a typical year is between 10 and 15 miles; however, the pandemic caused that amount to increase to approximately 35 miles at the start of FY 2022. This increase in carryover miles has mainly been driven by the inability of the Company’s crews to access homes during the pandemic.

Unable to enter homes, the crews have not been able to transfer services to the new mains. The crews, thus, have been unable to keep up with contractor crews installing gas mains and services. The Company estimates that it may still achieve its goal of 65 abandonment miles for FY 2022; however, with the estimated 35 to 40 miles of carryover in place at the start of FY 2023, the Company has agreed to reduce installation miles in FY 2023 so Company crews can catch up and decrease the carryover miles in FY 2024 while still meeting their 65-mile abandonment goal for FY 2023.

The Division and the Company also discussed the continued ISR underspend that the Company is experiencing. The Company's underspend in FY 2021 was over \$33 M and the forecasted underspend for FY 2022 is approximately \$11 M. Limited resources and the ongoing effects of the Pandemic have been the main drivers for the underspend. The Division understands that delays can occur on many scheduled projects and that the Company needs to balance a reasonable workload while following an approved budget. If projects are delayed, then the Company may not always have other projects ready to take their place, resulting in the underspend. On the other hand, reducing the overall budget too severely may handicap the Company's ability to initiate and complete projects in a flexible manner.

As there is an ongoing list of projects that can be scheduled for construction within the same year in the Proactive Main Replacement Program, the Company is able to substitute projects in place of projects that get delayed in other categories. The 2020 System Integrity Report reflects a reduction in Grade 1 leaks and an improved main leak rate but the number of Grade 2 leaks and the corrosion leak rate have actually increased. Moreover, the remaining term of the Proactive Main Replacement Program has lengthened due to a declining replacement rate (see *infra*) while Grade 1 main leaks and the over 45,000 unprotected steel services remain a significant source of concern. Therefore, if the Company reduces its forecasted carryover miles and has available resources, the Division recommends that the Company continue replacing leak prone pipe through its Proactive Main Replacement Program while still maintaining the overall ISR budget. In this way, the Company has some flexibility within the approved budget all the while meeting or exceeding the Company's goal of abandoning 65 miles of leak prone pipe per year.

Infrastructure Safety & Reliability

As discussed in last year's Memorandum in Docket No. 5099, the Rhode Island natural gas distribution system continues to be one of the oldest in the United States and includes a large proportion of leak-prone and deteriorating infrastructure which in some instances was installed over 100 years ago. For reference, categories of leak-prone pipe in the distribution system include cast iron, wrought iron, unprotected steel, copper which are more susceptible to corrosion, and Aldyl-A and Polybutylene plastic pipe, which are more brittle and prone to leaks than today's modern plastic pipe.

The Company has made significant progress in eliminating its leak-prone and deteriorating infrastructure through its replacement programs since acquiring the gas systems in Rhode Island in the early 2000s. Nonetheless, the Company still maintains one of the largest collections of leak-prone aging infrastructure nationwide. From its 2020 System Integrity Report, the Company reports 673 miles of cast/ductile iron and 316 miles of unprotected bare steel mains, which consists of 45,027 unprotected bare steel, 25 cast iron and 132 copper services. While there have been some reductions in leak prone mains over the last year (30 miles of cast/ductile iron and 33 miles of unprotected bare steel mains), the

leak prone service inventory is either unchanged (cast iron and copper services) or has increased (924 more unprotected bare steel services) which is concerning.

The Company completed an initial “scrub” of its infrastructure records in 2020 during the implementation of its new Gas Business Enablement System (GBE) Program. The Company reports that it has continued to scrub its records; however, the Company also indicates that there are further records to update. These efforts to clean data have identified additional data issues which could be the reason for the unchanged or increased service inventory numbers and other data issues.

Additionally, during the Division’s review of the similar data provided by the Company, a comparison of the 2019 and 2020 System Integrity reports with PHMSA data and other data responses provided during this docket, revealed numerous data discrepancies (*i.e.* infrastructure inventory, leak metrics). Whether attributable to the on-going data issues found during the GBE system installation or other errors, the existence of these data discrepancies is concerning. The Company needs to complete its data scrub and develop an accurate list of leak prone mains and services.

Review of 2020 System Integrity Report

The Company replaced only 34 miles of leak-prone main in 2020 compared to the planned replacement of 65 miles. While its overall main and service leak rates and leak receipts has decreased to some degree, leak backlog and corrosion leak rates have increased according to the data provided by the Company in its 2020 System Integrity Report. The bright spot is that cast iron main breaks are down 75% with a decrease in colder weather and heating degree days (HDD) for the winter season. Although the overall trends show some improvement in reducing leaks, there is concern that unless the Company is able to replace the planned amount of leak prone pipe each year, the metrics for leak reduction will plateau rather than showing a clear downward trend.

Based on the Company’s 2020 System Integrity Report (p. 24) and the current program’s replacement rate for 2020 of 34 miles/year, the Division calculates the elimination of all leak-prone main will take 29.1 years. This timetable is based on 989 miles of leak prone main divided by 34 miles of *actual* annual main replacement. The Division’s calculation conflicts with the Company’s calculation of 14 years which is based on 989 miles of leak prone pipe divided by a “planned” replacement rate of 70.6 miles per year. Unless the targeted replacement miles of main per year is consistently achieved, the length of the replacement program will extend well beyond 20 years.

For the past several years the actual remaining length of the replacement program has stagnated at 20 years, or based on actual replacement rates, has extended beyond 20 years. Since the years remaining on the program have not been reduced, the Division believes the Company must re-evaluate semi-annually the performance of its replacement program and adjust the program (*e.g.*, by reprioritizing Company resources) to ensure that the actual replacement rate for any particular year does not fall below the targeted rate for that year. This will ensure that the Company keeps the replacement program “on track,” *i.e.*, that the projected remaining term for completion of the program does not stagnate but rather, in fact, continues to decline.

Review of Replacement Program Risk Ranking Methodology

RWA and the Division have reviewed the Company's risk ranking methodology for replacing leak prone mains and services found in the Gas Work Method (Procedure) ENG04030 supplied by the Company as a data response to the Division's questions during the October 18, 2021, review of the FY 2023 Gas ISR Plan. In reviewing the Gas Work Method, which the Company has represented is the procedure that it uses to evaluate and risk rank the worst segments of its gas system, we have several concerns:

1. **Risk Ranking Criteria** – In section 5.2 of the Gas Work Method, leaks are listed as the primary driver for ranking risk calculations; age of infrastructure is not a primary criterion used in risk ranking mains and services for replacement. When asked about this fact, Company staff previously stated they did not see the inclusion of age as vital. This omission of age as a criterion for risk ranking and pipe replacement is of concern since a sizable portion of the Company's 45,027 high-risk leak prone un-protected bare steel services are as old as 75-100 years.
2. **Lack of Separate Risk Ranking Procedure for Services** – The purpose of the Gas Work Method ENG04030 section 1 is to describe and detail the identification, evaluation, and prioritization of distribution main segments for replacement. While leak prone services are to be replaced as part of the main replacement program, the risk profile for the 45,027 unprotected bare steel services is much different than it is for cast iron mains. The latter typically have breaks at joints that leak as opposed to the former which sustain corrosion leaks from the age of the bare steel over time. The Division is concerned that the Company does not know if it is replacing the riskiest services since it does not risk rank them separately from mains.
3. **Snapshot methodology vs Comprehensive program methodology** – The Gas Work Method procedure evaluates a snapshot annually of the leakiest mains (and associated services) but does not risk rank its complete inventory of leak prone main segments and services. This approach is flawed since it does review all leak prone segments for risk ranking and elimination but rather just reviews those that have some leak activity. With much of the leak prone aging infrastructure being over 75-100 years old, especially services and mains near high consequence areas, a comprehensive approach to risk ranking leak prone pipe is needed. RWA and the Division have pressed the Company each year for this inventory list of segments risked ranked to no avail. The information provided by the Company has consisted of simply a printout from the GBE system of all segments. The printout does not categorize pipe by leak prone material type and risk ranking. The question remains: how does the Company know that it is replacing the riskiest segments of its system if it does not risk rank all of its leak prone pipe population.

The Commission should direct the Company to evaluate making modifications to its Gas Work Method ENG04030 to address the items mentioned above. Additionally, overall, the Company needs to aggressively monitor both the proactive main and service replacement programs to ensure the riskiest mains and services are being replaced in the most expeditious manner possible to ensure the safety of its customers and the public and to improve the reliability of its gas system at the most economical cost possible.

Review of Company's FY 2021 3rd Quarter Update

The Division has also reviewed the Company's FY 2022 3rd Quarter Update which forecasts an \$11 M underspend through March 31, 2022 (end of fiscal year). Most of the underspend is attributable to the ongoing Pandemic and limited resources while other design, timing and supply chain issues have delayed other projects. In reviewing the FY 2023 budget, the Division verified that the Company's intention was to incorporate any work not completed in FY 2022 into the FY 2023 budget and to reconcile the FY 2022 actual spend in the annual ISR reconciliation which is filed in August as part of the Company's Distribution Adjustment Charge filing. Therefore, the estimated \$11 M underspend will be reflected in the reconciliation factor effective November 1, 2022, and the estimated \$11 M of work not completed in FY 2022 is included in the total FY 2023 proposed budget of \$175.655 M, which the Division believes is proper.

IV. CONCLUSION/RECOMMENDATIONS

As the Division emphasized in last year's ISR proceeding, the safety and reliability of the natural gas distribution system should be at the forefront of any infrastructure replacement program. It is in the Company's, its customers', and in Rhode Island citizens' best interests to find the most cost effective, efficient, safe, and reliable way to eliminate leak-prone infrastructure in the shortest time possible while continuing to monitor the Company's natural gas system overall for safety and reliability.

The Company must re-evaluate semi-annually the performance of its replacement program and adjust the program (*e.g.*, by reprioritizing Company resources) to ensure that the actual replacement rate for any particular year does not fall below the targeted rate for that year. This process should assist the Company in maintaining the replacement program "on track" to ensure that the projected remaining term for completion of the program does not stagnate but rather, in fact, continues to decline.

The Company also needs to continue to re-evaluate the effectiveness of its proactive replacement programs to ensure the riskiest leak prone aging mains and services are being replaced so the metrics around leak rates, *i.e.*, inventory of leaks to be repaired, continue to trend downward, especially around the most hazardous leaks (Grade 1). Specifically, the Company should evaluate making modifications to its Gas Work Method ENG04030 to address: 1) Risk Ranking Criteria, 2) Lack of Risk Ranking Procedure for Services and 3) Infrastructure Program Methodology as discussed above in this memo. The Division recommends that the Commission direct the Company to undertake such an evaluation and address each of the Division's concerns in a report to be filed in this docket on or before October 1, 2022.

Discrepancies exist in data presented by the Company in this proceeding and in years past relating to the existing quantities of leak prone infrastructure. These discrepancies affect the credibility of the data being provided. The Division recommends that the Commission require the Company to complete its data scrub and provide an accurate count of all remaining leak prone mains and services as of March 31, 2022 (End of FY 2022) on or before October 1, 2022.

The main goal of the Company's proposed ISR plan is reduce the most hazardous Grade 1 and Grade 2 leaks by replacing leak prone pipe. A better understanding of how these leaks are classified, repaired, and reported is essential in assessing the ongoing progress of the Company's ISR program. The

Company has agreed to work with the Division to better understand leak receipts, how leaks are classified, when and how leaks are repaired, and develop a plan to track the most hazardous Grade 1 and Grade 2 leaks.

PPL has indicated to the Division that the GBE Plan may be replaced or significantly modified if the Company is acquired. It is possible, therefore, that National Grid's DNV-GL Synergi software system—software developed as part of the GBE Plan which is used for system planning, risk ranking and modeling for needed system improvements—may be subject to replacement or modification as well. Knowledge of the status of the software is critical to ensuring that the Company does truly know its distribution system and for effective regulatory oversight of the pending and future ISR plans. This is particularly true for as mentioned above the Division has concerns about data discrepancies regarding leak prone infrastructure. Despite inquiries of the Company and PPL by the Division in Docket D-21-09, neither the Company nor PPL were able to inform the Division about the Company's plans for maintaining the continuity of the GL Synergi software system's function if the acquisition of the Company by PPL is consummated. The Commission should require the Company to provide the Commission and Division with a written update as to the Company's plans for maintaining, replacing or modifying this software program no later than six months after any acquisition of the Company is completed.¹

It is RWA's and the Division's belief that the continued investment in replacing aging leak prone infrastructure is necessary to accelerate the elimination of the riskiest Grade 1 and Grade 2 leak prone pipe and to improve the safety and reliability of the gas system to its customers and the public in general. For all of the foregoing reasons, the Division recommends the Commission approve the agreed to FY 2023 Gas ISR Plan and budget as filed with the Commission.

¹ The need for the Company to truly know its system through systems such as GL Synergi is readily apparent. On February 1, 2022, a Grade 1 Leak in Woonsocket, Rhode Island closed both sides of Cumberland Hill Road. Company crews worked for many hours to repair the leak.