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Non-Wires Alternative 2023

Third Quarter Report

November xx, 2023

Index

1. Introduction and Executive Summary

New York State Electric & Gas Corporation ("NYSEG") and Rochester Gas and Electric Corporation ("RG&E" and together with NYSEG, the "Companies"), submit this quarterly Non-Wires Alternative ("NWA") progress report for the third quarter of 2023 in accordance with the October 12, 2023 Electric and Gas Rate Plan Order.[1] The Companies' quarterly NWA report includes project costs and expenditures, project activities, anticipated in-service dates, project cost and incentive recoveries, and operational savings and other benefits.

This quarterly report provides programmatic and financial details from July 1, 2023 through September 30, 2023, NWA activities and projects currently under consideration including NYSEG's Stillwater and Java microgrid NWA projects.

2. NWA Projects and Activities

2.1 NYSEG NWA PROJECT: STILLWATER

NYSEG plans to meet the Stillwater NWA project needs (i.e., projected overload and low voltage power quality issues) through a developer installed, owned, and operated ~1 MW/2.9 MWh battery energy storage solution ("BESS") located roughly 1.8 miles from the Stillwater substation on the 4.8 kV distribution circuit. More details regarding the traditional solution and previously reported NWA activities can be found in Exhibit A.

2.1.1 Description of NWA Activities

NYSEG continues to work with the selected third-party developer to implement the Stillwater NWA project to ensure close coordination and alignment of efforts amongst both project teams. The project is entering the closeout phase with the third-party developer planning to deliver a certificate of completion in Q4 2023 which will certify that the third-party developer has built everything that they are contractually obligated to for the BESS.

In addition to conducting project closeout activities, NYSEG is continuing to negotiate a contract with a third-party service provider for a Flexible Interconnection Capacity Solution ("FICS") style connection that would monitor loading on the Stillwater Substation transformer

[1] *Cases 22-E-0317 Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of New York State Electric & Gas Corporation for Electric Service.and Case 23-E-0319 Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Rochester Gas and Electric Corporation for Electric Service, Order Adopting Joint Proposal ("Joint Proposal") (issued October 12, 2023). Appendix HH requires the Companies to submit quarterly Non-Wires Alternative progress reports 60 days following the end of each calendar quarter.*

and autonomously send dispatch signals to the BESS when appropriate. This automation portion of the project is anticipated to be completed by Q2 2024, after the system undergoes a period of manual operation.

In parallel to the construction and energization of the Stillwater BESS, NYSEG, and the developer are collaborating with New York State Energy Research and Development Authority ("NYSERDA") to conduct a fire-safety test in accordance with a safety inspection process being developed and coordinated by NYSERDA.

2.1.2 Project Costs and Expenditures

As of September 30, 2023, there have been $678,451 in capital costs and $10,661 in O&M costs incurred on the Stillwater NWA project. The majority of these expenditures are related to the interconnections scope of work including third party engineering, equipment, materials, labor, etc.

2.1.3 Anticipated Project In-Service Date

As of the date of this report, NYSEG anticipates that the Stillwater NWA project will be placed in-service by December 31, 2023; however, this date is subject to change based on developer availability.

2.1.4 NWA Cost and Incentive Recoveries

Once the Stillwater NWA project is placed in-service and third-party developer payments commence, NYSEG will ensure such costs are treated in accordance with the NWA cost recovery mechanism established in the Companies' approved Joint Proposal.[2]

2.1.5 Identification of Operational Savings and/or Other Benefits

The Benefit Cost Analysis ("BCA") for this project was calculated using the Societal Cost Test ("SCT"). As of the date of this report, the total benefits included in the Stillwater NWA BCA are calculated as $6.88 million and the total costs are $5.13 million resulting in a BCA ratio of 1.34.[3]

Operational benefits provided by the Stillwater NWA project include the ability to keep the electrical load on the Stillwater substation's transformer bank below its nameplate rating and to minimize the possibility for transformer degradation and load curtailment.

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[2] Cases 22-E-0317 and 22-E-0319, Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of New York State Electric & Gas Corporation for Electric Service and Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Rochester Gas and Electric Corporation for Electric Service, Order Adopting Joint Proposal (issued October 12, 2023).

[3] Benefits and costs were calculated utilizing the Companies Benefit Cost Analysis Handbook Version 4.0 filed contemporaneously with the Distributed System Implementation Plan (DSIP) in Case 16-M-0411.

2.2 NYSEG NWA PROJECT: JAVA MICROGRID

The Java microgrid NWA project is a BESS designed to establish the redundancy necessary to address the potential risk of loss of the existing single incoming sub transmission line and/or failure of the existing transformer bank at the Java substation. Installation of this system will defer portions of the traditional wires solution alternative. The solution is being designed to meet all Java substation customers' electric demand for a minimum of 8 hours (until the contingency condition is repaired or a mobile substation is rolled out).

2.2.1 Description of NWA Activities

An updated preliminary project development schedule is shown below to reflect the changes due to the battery RFP, prioritization of capital projects through the recent rate case process, and placing the project on hold until 2027. The milestone schedule below shows the estimated schedule with the assumption the Java microgrid project moves forward after NYSEG re-evaluates the traditional solution scope and cost, BESS cost estimate, and BCA.

Project Milestones	**Re-vised Target Date**	**Status**
Preliminary Engineering Start Date	March 2021	Complete
Preliminary Engineering Completed	October 2021	Complete
Conceptual Engineering Completed	July 2022	Updating[4]
Equipment RFP Bid Released	April 2027	To be re-issued. **On hold** pending re-evaluation of traditional solution costs, project costs, and BCA.
Equipment Awarded/PO	June 2028	**On hold** pending re-evaluation of traditional solution costs, project costs, and BCA.
Detailed Engineering & SP&C 3-7 Completed	October 2029	**On hold** pending re-evaluation of traditional solution costs, project costs, and BCA.

[4] NYSEG is in the process of updating conceptual drawings for internal approval and completing other necessary activities required to place the project on hold until 2027.

Permitting	May 2029	**On hold** pending re-evaluation of traditional solution costs, project costs, and BCA.
Start Construction	June 2029	**On hold** pending re-evaluation of traditional solution costs, project costs, and BCA.
Battery/Equipment Delivery (Estimated 12 months)[5]	September 2030	**On hold** pending re-evaluation of traditional solution costs, project costs, and BCA.
Start Commissioning	January 2030	**On hold** pending re-evaluation of traditional solution costs, project costs, and BCA.
In-Service	March 2030	**On hold** pending re-evaluation of traditional solution costs, project costs, and BCA.

The project is currently on hold until 2027 at which time NYSEG will then re-evaluate the traditional solution scope and cost, BESS cost estimate, and BCA. The schedule will be updated when the project commences again. NYSEG met with the State of New York Department of Public Service ("DPS") Staff on September 28, 2023, and provided an update on the project schedule, costs, and BCA impacts.

2.2.2 Project Costs and Expenditures

As of September 30, 2023, there have been $1,003,336 in incremental costs incurred on the Java microgrid NWA project. These expenditures are for third-party engineering services, internal labor, and overheads. NYSEG is in the process of updating conceptual drawings for internal approval and completing other necessary activities required to place the project on hold until 2027.

2.2.3 Anticipated Project In-Service Date

The Java microgrid project was planned to be placed in service by October 31, 2024. The project is currently on hold until 2027, with an estimated project in-service date of March 2030 pending the approval of the project moving forward after the re-evaluation of the traditional solution scope and cost estimate, BESS cost estimate, and BCA. The schedule and in-service date will be updated in the future when the project commences.

[5] Equipment lead times could impact the in-service date. Industry is seeing a twelve to twenty-four month lead time currently.

2.2.4 Identification of Operational Savings and/or Other Benefits

The primary benefit of the Java microgrid NWA project will be the back-up supply provided to the Java substation customers, preventing long duration outages. The proposed energy storage microgrid solution is more conducive to utility ownership than developer ownership, due to the complex nature of the technical solution required and the multiple grid benefits being provided.

Additionally, NYSEG ownership and implementation of an energy storage microgrid solution presents opportunities for NYSEG to gain integration and operational experience to inform and support the development of advanced technologies and distributed energy resources ("DER") such as battery storage, effectively across NYSEG's service territory. Connecting battery storage at distribution substations can accelerate project development, reduce overall implementation costs, and provide benefits to a larger number of customers.

NYSEG looks forward to the opportunity to continue advancing this project in the future as funding allows.

3. Conclusion

The Companies continue to make progress on evaluating electric transmission and distribution system needs to identify and pursue suitable NWA projects which are cost effective for New York ratepayers. Updates on these projects will be provided in future quarterly reports as appropriate.

A summary of current NYSEG NWA projects is included in the below table. There are no RG&E NWA projects underway at this time. All information presented in the below table reflects project data as of September 30, 2023.

Company	Project Name	Project Activity/ Status	Target ISD	Cost & Incentive Recovery	OPEX	Deferred OPEX	CAPEX	Operations Savings & Benefits
NYSEG	Stillwater	Project closeout	Q4 2023	TBD	$10,661	$0	$678,451	Peak shaving leading to increased transformer life
NYSEG	Java Microgrid	Conceptual Engineering design completed	On hold until 2027. Estimated March 2030.	TBD	$0	$0	$1,003,336	Increased customer reliability

EXHIBIT A – NYSEG STILLWATER NWA PROJECT DETAILS

NYSEG's Stillwater substation (located in NYSEG's Mechanicville Division, Town of Stillwater), serves approximately 1,270 residential and small commercial customers via (3) 933kVA transformers (2.8 MVA bank) and one (1) 4.8 kV distribution circuit where overload conditions and power quality (i.e., low voltage) issues are identified system needs. The proposed traditional wires solution alternative was to upgrade and replace the existing transformer bank with a new (1) 14 MVA LTC 34.5-12.5 kV transformer and convert approximately 2.5 miles of the distribution circuit to 12.47 kV and establish in-field adjacent circuit ties, with an estimated cost of $13.70 million. With the Stillwater NWA project, NYSEG plans to defer for 10 years the implementation of this traditional wires solution.

NYSEG issued an RFP in July 2017 for NWA resources to defer the costs of planned Stillwater substation upgrades, and chose a bidder project which consisted of a 1 MW/2.9 MWh battery storage solution to address the issue of the peak loading on the Stillwater substation transformer bank. The project point of interconnection to the existing 4.8 kV NYSEG distribution system is approximately 1.8 miles from the Stillwater substation, which is expected to minimize any power quality issues.

In 2021, NYSEG reported that the following steps and milestones were completed: relocation of preferred site; revisions to interconnection application consistent with relocation; local permitting; public outreach; and interpretation/application of the current tariffs to battery storage charging. NYSEG collaborated with DPS Staff on the BCA calculation to validate the methodology, assumptions, and results. NYSEG reported Developer's receipt of approval of their request for extension of single use permit for the site, and progress with the NWA agreement.

NYSEG executed the NWA contract with the developer on June 9, 2022. The developer and their construction contractors broke ground at the project site in late 2022. The project site was cleared of interfering trees, a new driveway was installed, and the foundations for the BESS container and other equipment were prepped and implemented. NYSEG was able to provide the site with temporary single-phase power for use during construction. The BESS container, transformer, control house, fire suppression system, and all underground conduits have been installed by the developer and their construction contractors. NYSEG was challenged with additional unexpected long-lead time equipment delays for the interconnection recloser and line regulators. NYSEG sought alternative means to secure the required equipment within a timely manner to avoid significant project delays. NYSEG was able to source additional working hardware that is currently being installed on the circuit.

Cold commissioning has been completed for the battery site. Hot commissioning, was completed in August 2023, and the developer is actively pursuing the final permitting from the

village of Stillwater. The ensuing project close-out is scheduled for December 2023; once this permit is granted.

EXHIBIT B – NYSEG JAVA NWA PROJECT DETAILS

NYSEG's Java electric substation in NYSEG's Lancaster Division, town of Java, Wyoming County, is comprised of (3) 34.5-4.8 kV 1.667 MVA transformers, for a total substation bank capacity of 5 MVA serving approximately 1,700 residential and small commercial customers via two 4.8 kV distribution circuits; circuit #280 and circuit #281. The needs identified for either a traditional wires solution or an NWA solution (in total) were to reduce the peak loading on the individual transformer bank to below its nameplate rating of 5 MVA, address reliability and power quality issues that exist on the Java circuit #280 and address the potential risk of failure of the existing transformer.

NYSEG separated the NWA project into two independent NWA projects to: address liability concerns in the event of unforeseen events impacting customers; address technical and operational complexities which would occur when operating a battery as an electrical "island" or microgrid; and to address potential issues associated with the battery system acting as the sole temporary electrical supply to all Java customers following the N-1 event until normal supply is restored. The resulting two projects are the Java peak shaving NWA project designed to address the peak shaving need which would be owned by a selected developer, and the Java microgrid NWA project to address the potential risk of failure of the existing transformer which will be owned by NYSEG.

The Java peak shaving NWA project would interconnect a 1 MW/5 MWh lithium ion BESS to the existing 4.8 kV NYSEG distribution circuit #280 at 401 Holland Road, Arcade, NY, which is approximately 0.3 miles from the Java substation, and would defer the traditional wires solution associated with upgrading the existing substation transformer only, for a period of seven years. Substation transformer load readings obtained in 2020 at the Java substation have shown that the subsequent peak loading is 3.8 MVA, which is less than the substation transformer bank's 5 MVA rating. As the loading at this substation is no longer a concern, the Java peak shaving NWA project has been placed on hold. NYSEG will continue to monitor the load at this substation and will re-evaluate the need for the peak shaving project based on existing and future forecasted load levels.

The Java microgrid NWA project is a battery storage system designed to establish the redundancy necessary to address the potential risk of loss of the existing single incoming sub transmission line and/or failure of the existing transformer bank at the Java substation. Based on the preliminary engineering design and study, the design includes a 4 MW/35MWh BESS with an 8 MVA inverter, provides the dominant grid forming source of the microgrid for serving loads during a sustained outage a minimum of 8 hours in most operating conditions (until the contingency condition is repaired or a mobile substation is rolled out). The inverter size of the new BESS is 8 MVA based on adequate end of line ("EOL") fault current is achieved in the

islanded mode, primary fuses operate in less than 2 seconds (for faults in their immediate zone), adequate coordination amongst protection devices on the feeder backbones (i.e., recloser-recloser and recloser-fuse) is achieved, and the BESS short-term capacity provides twice the maximum load current for supporting of cold load pickup and transformer inrush.

The project team completed conceptual drawings, development of the battery RFP which was released in December 2022, and subsequently started reviewing the technical bids for the battery. The project team was in the process of reviewing and assessing the total project costs and updated BCA with the preliminary equipment prices received; however, such activities were placed on hold pending further review of the BCA and the outcome of the pending rate case. The project team met with the DPS Staff on September 28th to discuss the project, budget, schedule, and BCA. Due to higher than budgeted equipment costs based on market conditions during the Battery RFP, the overall costs increased for the project were estimated to be a minimum of $33.5M and maximum $42.4M. The original BCA ratio was 1.24 which included a peak shaving portion that has since been separated into another project and placed on hold. Based on the mid-range estimated project costs of $39.3M, the re-estimated BCA is 0.42 for the project. The traditional solution cost was not re-estimated at this time. NYSEG recommended the Java Microgrid Project to be put on hold until 2027 to the DPS Staff. At that time, NYSEG will re-evaluate traditional solution scope, cost estimate and BCA and determine how to proeceed.

The Key Steps, when revisiting the project in 2027 will be following:

1. Revisit Need Statement, Load Data, and Battery Sizing for the project. If needed, adjust battery size.
2. Complete update of Traditional Solution Scope and Cost Estimate.
3. Completed update of Java Microgrid Cost Estimate.
4. Complete update of BCA.
5. Avangrid Steering Committee to review BCA.
6. Meet with DPS Staff to review costs estimates and path forward.

The consideration of putting the project on hold until 2027 was due to the prioritization of projects through the rate case, potential for future cost of the battery to decrease, the BCA criteria may change, and the traditional solution costs may increase. This may improve the BCA of the project. Placing the project back into the CAPEX hopper and re-assessing it like any other NWA project would re-create and duplicate the same work that was already completed for Java Project. This would also extend the time to complete the project and to possibly be at same point as the Java Microgrid Project is currently. As a result, NYSEG put the project on hold to re-evaluate in 2027.

Lessons learned from the project are the following:

Description of Issue	Impact on Project	Recommendation	Action Taken
Increase in Battery Equipment Costs. Battery Equipment is not a standard item NYSEG procures at this time. Updated pricing is only known from the project RFP or RFI. Larger Lithium Ion Battery costs are not part of our current estimates.	Cost of battery came in higher than budgeted and expected. This put the project on hold.	Annual RFI requesting pricing from battery vendors.	Smart Grid group completing updates with vendors to get more regular information on the batteries and costs impacts.
NWA can delay need for capital project where the need does not materialize	Load at substation changed and put the Peak Shaving Project on hold. The battery size was re-estimated based on current load and delayed battery RFP.	The battery size was re-estimated based on current load. Project Team is to re-visit load data and battery sizing in 2027 to determine design changes. Communication of load changes and projects between various groups within the organization.	Load data to be collected and reviewed at beginning of design and after project is on hold. Changes in load to be communicated to groups in organizations impacted.
Longer lead times on material due to economic conditions.	Long equipment delays can push out the schedule.	Ensuring lead times upfront before contracts are signed. Switching to a different vendor if they cannot meet schedule dates. RFI of equipment lead times upfront.	Requested lead time information during Battery RFP and Q&A. NYSEG requested any risks of material and component long lead times that may impact schedule. Request information again prior to battery RFP re-issued.