BENEFIT COST ANALYSIS: JAMAICA NON-WIRES SOLUTIONS PROJECT

Table of Contents

Overview

Consolidated Edison Company of New York, Inc. ("Con Edison" or the "Company") commenced implementing the Jamaica Station Non-Wires Solutions ("NWS") Project ("Jamaica") to alleviate projected overloads at the Jamaica area substation serving the Jamaica network.[1] The NWS Project is comprised of a portfolio that seeks to eliminate the traditional solution of upgrading limiting sections of 27 kV bus sections at the Jamaica area substation, as detailed in Appendix A. This filing provides the Benefit Cost Analysis ("BCA") results for the Jamaica NWS as the Company has reasonable certainty related to the costs to implement it.[2]

Based on the Company's BCA, the Jamaica NWS will generate a total of $35.9 million in net societal benefits, of which $25.1 are for customers, with a societal benefit-to-cost ratio of 1.44. The portfolio will generate these benefits by leveraging a diverse set of customer-sided solutions as an alternative to a traditional infrastructure upgrade.

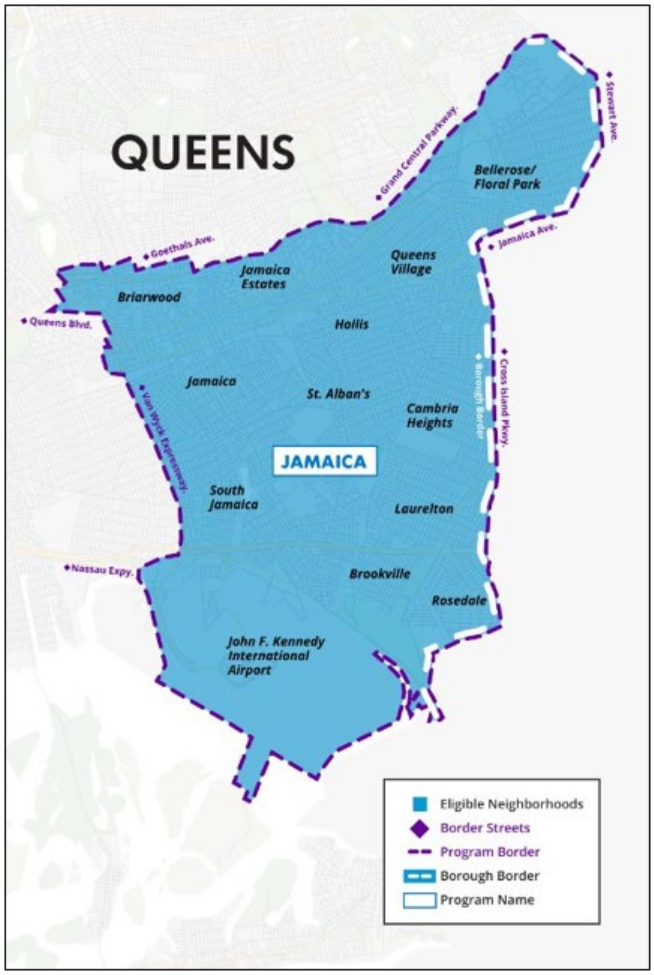
[1] Case 22-E-0064, *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Electric Service* ("2022 Rate Proceeding"), NWS Project Consultation Letter (filed June 20, 2023).

[2] The New York State Public Service Commission ("PSC" or "Commission") issued its Order Approving Shareholder Incentives, requiring, inter alia, that Con Edison's Targeted Demand Management Program end on January 25, 2017, (*See*, Case 15-E-0229, *Petition of Consolidated Edison Company of New York, Inc. for Implementation of Projects and Programs that Support Reforming the Energy Vision*, Order Approving Shareholder Incentives ("Incentives Order") (issued January 25, 2017), p. 9). Henceforth, any NWS projects were to be completed under the NWS provisions of the rate plan adopted in the Commission's 2017 Rate Case Order issued on the same date. (See, Case-16-E-0060, *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Electric Service* ("2016 Rate Proceeding"), Order Approving Electric and Gas Rate Plans ("2017 Rate Case Order") (issued January 25, 2017). This methodology was continued in the Company's subsequent rate plans (*See*, 2022 Rate Proceeding, Order Adopting Terms of Joint Proposal and Establishing Electric and Gas Rate Plans with Additional Requirements ("2023 Rate Case Order") (issued July 20, 2023)).

Background

Following the release of the Fall 2022 forecast, the Company identified that projected loads in the Jamaica network served by the Jamaica area substation would exceed the infrastructure's capabilities beginning in Summer 2026. The traditional solution to alleviate that capacity constraint in the Jamaica area substation was to replace the limiting 27 kV bus sections, as described in the white paper in Appendix A. Figure 1 illustrates the geographic area affected by the projected infrastructure overload.

Figure 1: Map of the Jamaica NWS Geographic Area



The Company issued a Request for Proposals ("RFP") in March 2023[3] for a portfolio of customer-sited Distributed Energy Resource ("DER") solutions to provide peak load relief to eliminate the need for the traditional infrastructure upgrade. The load relief sought through the RFP is required through Summer 2027, since the Jamaica network will be relieved by the Idlewild distribution area substation and the Eastern Queens transmission substation, planned to be in service before Summer 2028.[4] The total load relief need for the Jamaica NWS based on the Company's forecast is 13 MW.

Based on responses received in the RFP, the Company developed a portfolio of energy efficiency, energy storage, and customer-sited power factor correction to meet the projected load relief need. The portfolio size reflecting the load relief targets are shown below in Table 1.

Table 1: Jamaica Area Station Forecasted Deficiency

	Summer 2026	Summer 2027
Network Peak (HE 21) MW	2	13

Targeted energy efficiency in the Jamaica network is implemented using additional incentives applied to existing Company energy efficiency programs, as well as through a direct strategic partnership with the New York Power Authority ("NYPA") for energy efficiency upgrades in buildings served by NYPA. In addition, the Company has procured dispatch rights from customer-sided energy storage systems in development to provide reliable peak load relief in the network by as early as 2026. Finally, the Company has included customer-sited dynamic power factor correction in its Jamaica NWS offering. This technology is intended to improve power quality for customers who may benefit from this technology based on their usage, with an upstream benefit of increasing capacity at the Jamaica area station.

[3] Case 14-M-0101, *Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision*, Con Edison NWS Solutions RFP for Jamaica Substation (filed March 16, 2023).
[4] Case 22-E-0064, *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Electric Service* ("2022 Rate Proceeding"), Order Addressing Cost Recovery of Idlewild Project (issued January 19, 2024), p. 5.

The Company expects that the resources contributing to the NWS portfolio will be available in time to meet the projected load relief.

BCA Summary

The Company has conducted an initial BCA to calculate the societal benefits and costs of using the NWS portfolio in Jamaica to eliminate the traditional infrastructure upgrade. The Company's analysis is based on the portfolio of resources the Company has identified to date to meet the required load relief needs. Based on the BCA, the NWS portfolio results in a Societal Cost Test ("SCT") score of 1.44 and will generate net benefits valued at $35.9 million. A high-level summary of the BCA results is found in Table 2 below.

Table 2. Jamaica NWS portfolio BCA summary. All values expressed as NPV to 2023

Total Benefits (NPV to 2023)	**$118,413,823**
Total Costs (NPV to 2023)	**$82,513,554**
Net Benefits (NPV to 2023)	**$35,900,269**
Customer Portion of Net Benefits (70%)	*$25,130,188*
Performance Incentive (30%)[5]	*$10,770,081*
Benefit-to-Cost Ratio (SCT Score)	**1.44**

Pursuing the Jamaica NWS over the traditional solution yields the following benefits (NPV to 2023):

- Eliminating the need to build the traditional solution, saving customers $56.9 million[6];
- Avoiding 879,208 MWh of generated energy, saving customers $23.0 million;

[5] Per the Incentive Order, customers receive 70 percent of a NWS portfolio's net benefits, and the utility's shareholders earn 30 percent. The Company recovers incentive through the Monthly Adjustment Clause after it has been earned, i.e., once the requisite customer sided MW reductions are operational as defined in the Incentive Order.

[6] This is calculated as the net present value ($2023) of the Revenue Requirement which would be collected for implementing this traditional solution. As the solution is being eliminated through the NWS, the full benefit is assumed as part of the Benefit Cost Analysis.

- The avoidance of CO_2 emissions, supporting New York State and New York City CO_2 emission reduction goals and providing a $16.6 million benefit;
- Avoiding costs associated with primary and secondary distribution capacity infrastructure of $11.6 million for customers; and
- Avoiding 13 MW of generation capacity at the network peak with a corresponding customer savings of $10.3 million.

The Company identified the following costs associated with implementing the NWS project (NPV to 2023):

- $39.6 million in funds necessary to implement measures under the NWS program not provided by the Company;
- $26.1 million in program participant incentives to Con Edison customers to accelerate market adoption of energy efficiency, energy storage and ancillary services technologies in the specified NWS network;
- $14.3 million in program participant incentives to Con Edison customers from other programs; and
- $2.5 million in costs associated with the Company's administration and implementation of the NWS program, for items such as planning, training, marketing, and payments to independent contractors for evaluation, measurement, and verification (EM&V).

A detailed summary of the Societal Benefit and Cost Streams resulting from this NWS Portfolio can be found in Table 3.

Table 3. Jamaica NWS Societal Benefits and Costs

Benefits (NPV to 2023)	Traditional Solution Elimination Value	$ 56,851,823
	Avoided LBMP[7] Benefit	$ 23,034,584
	Net Avoided CO_2 Benefit	$ 16,574,956
	Avoided Primary, Distribution and Secondary Infrastructure Benefit	$ 11,606,608
	Avoided Generation Capacity Cost Benefit	$ 10,345,852
Total Societal Benefits		**$ 118,413,823**

Costs (NPV to 2023)	Customer Cost	$ 39,554,497
	NWS Incentive Cost	$ 26,103,461
	Other Incentives from Programs Funded by Customers	$ 14,316,103
	NWS Program Implementation + Administration + EM&V Cost	$ 2,539,493
Total Societal Cost		**$ 82,513,554**
Societal Cost Test Score		**1.44**

[7] Locational Based Marginal Pricing.

Appendix A: Traditional Solution Whitepaper (as of 2022)

Central Operations / Substation Operations
2022

1. Project / Program Summary

Type: ☒ Project ☐ Program	**Category: ☒ Capital ☐ O&M**
Work Plan Category: ☐ Regulatory Mandated ☒ Operationally Required ☐ Strategic	
Project/Program Title: Jamaica Substation - Replace Limiting 27kV Bus Sections	
Project/Program Manager: Various	**Project/Program Number (Level 1):**
023	
Estimated Start Date: January 2023	**Estimated Date In Service: May 2026**
A. **Total Funding Request ($000)** **Capital: 31,440** **O&M:** **Retirement:**	B. **☐ 5-Year Gross Cost Savings ($000)** **☐ 5-Year Gross Cost Avoidance ($000)** **O&M:** **Capital:**
C. **5-Year Ongoing Maintenance Expense ($000)** **O&M:** **Capital:**	D. **Investment Payback Period: (Years/months)**

Work Description:

This project will replace the limiting 27kV bus sections at Jamaica Substation prior to the summer of 2026. The new bus sections will have a 300-hour summer rating of at least 3,000 amps. Engineering for this project will start in 2022. Due to the scope and difficulty of scheduling outages at Jamaica Substation, construction will need to begin in 2023 in order to complete the project by 2026.

Justification Summary:

The load projections for 2026 show that the 300-hour rating for the 27kV bus sections for Jamaica Substation will be exceeded. This means that under peak conditions, a contingency would cause Jamaica Substation to be overloaded. The overloads under these conditions could trigger remedial actions such as voltage reduction or customer load shedding. The bus replacements done under this project will provide adequate ratings for Jamaica Substation to maintain single contingency design without remedial actions as described above.

Relationship to Broader Company Plans and Initiatives (e.g. Long-Range Plans, CLCPA Initiatives, Risk Mitigation):

This project helps mitigate the SSO enterprise risk Loss of a Substation. This project reduces the likelihood of loss of a substation by maintaining reliability standards for design contingency conditions. As electrification progresses, the reliance on the electric transmission and distribution systems will increase. Maintaining reliability standards during design contingencies conditions will have increased significance.

2. Supplemental Information

Alternatives

An alternative to this project is to transfer load out of Jamaica Substation – either to an existing nearby station or to a new substation. However, the load transfer solutions have been rejected because they are more costly to execute. In addition, all system expansion projects will be reviewed for non-wires solutions (NWS) in accordance with the suitability criteria outlined in the Distributed System Platform (DSP).

Risk of No Action

If this project is not pursued, Jamaica may require remedial actions and/or customer outages during design contingencies.

Non-Financial Benefits

This project will provide the necessary reliability and resiliency in an area of New York City that serves many critical loads (e.g., airports, transportation hubs, and hospitals) in a densely populated area where many buildings have elevators and various equipment loads.

Summary of Financial Benefits and Costs

N/A

Technical Evaluation / Analysis

Project Relationships (if applicable)

N/A

Basis for Estimate

This estimate is based on previous projects of similar scope.

3. Funding Detail

Historical Spend

	Actual 2017	**Actual 2018**	**Actual 2019**	**Actual 2020**	**Historic Year** (O&M only)	**Forecast 2021**
Capital						
O&M						
Retirement						

Total Request ($000):

Total Request by Year:

	Request 2022	Request 2023	Request 2024	Request 2025	Request 2026
Capital	**$0**	**$5,000**	**$7,860**	**$7,860**	**$10,720**
O&M*					
Retirement					

Capital Request by Elements of Expense:

EOE	2022	2023	2024	2025	2026
Labor		1,796	2,823	2,823	3,851
M&S		1,793	2,819	2,819	3,845
Contract Services					
Other		26	41	41	56
Overheads		1,385	2,177	2,177	2,968
Total	**$0**	**$5,000**	**$7,860**	**$7,860**	**$10,720**

Total Gross Cost Savings / Avoidance by Year:

	2021	2022	2023	2024	2025
O&M Savings					
O&M Avoidance					
Capital Savings					
Capital Avoidance					

Total Ongoing Maintenance Expense by Year:

	2021	2022	2023	2024	2025
O&M					
Capital					