BABYLON UNION FREE SCHOOL DISTRICT
SUFFOLK COUNTY, NEW YORK

REQUEST FOR PROPOSALS
TO FINANCE AN ENERGY PERFORMANCE LEASE PURCHASE AGREEMENT

Overview

The Babylon Union Free School District, Suffolk County, New York (the "District"), is seeking proposals (the "Proposal") from qualified respondents to be a third party lessor to a lease purchase agreement with the District (the "Lease"), the proceeds of which will be used to finance equipment and related work for the implementation of energy conservation measures pursuant to an energy performance contract between the District and Energy Systems Group, LLC (the "Performance Contract"). The Performance Contract with Energy Systems Group was executed on May 31, 2024. NYSED approvals are expected to occur on or about June 30, 2025. The District's building aid ratio is approximately 36%.

The District seeks competitive proposals for the $9,274,156 lease-purchase with a final maturity of July 25, 2040.

Project Description

The Project contemplates implementation of various energy saving measures including installation of equipment and related work (the "Equipment"). Energy conservation measures are to be installed in the following District buildings: Babylon Elementary School, Babylon Memorial Grade School and the Babylon High School. The energy conservation measures and related work are attached to this RFP.

Lease

Any proposed Lease shall define the purpose and objective of the financing and the rights and obligations of each party to the financing. Further, the Lease will specify the applicable interest rate, as well as standard contractual terms and conditions. The form of the lease purchase agreement, escrow agreement, and any related documents must be submitted with the proposal. Proposers must satisfy themselves that credit approval will be granted prior to submitting a proposal. All finance documents are subject to negotiation and modification by the District's counsel, and no terms shall be binding on the District until final approval by District's counsel. All agreements and contractual conditions are required to conform with the laws of the State of New York, including but not limited to New York General Municipal Law, Local Finance Law, Education Law, Energy Law and the regulations of the New York State Education Department, the Commissioner of Education and the Office of the New York State Comptroller. The District's attorneys will review and approve all documents before consideration and/or approval by the Board of Education.

Lessor will be required to provide a form of standard lease purchase agreement and escrow agreement with proposal.

Lease Assignment

Assignment of the Lease and related documents by the successful proposer shall be subject to the prior, written consent of the District. The Lease must state that any assignment or transfer of the Lessor's interest shall not be effective until the District has received prior, written notice, signed by the Lessor, of the name, contact person, address, telephone number and tax identification number of the proposed assignee and the District has given its consent in writing. No assignment will be valid unless the Lessor has received the District's prior, written consent. The lease shall further provide that certificates of participation shall not be executed and delivered without the express written approval of the District, which approval may be withheld by the District in its sole and absolute discretion.

Amount

The amount to be financed under the Lease is expected to be $9,274,156. Lessor shall be responsible for all fees of Lessor including legal, issuance, origination, commitment and closing costs. The District shall not incur or absorb any fees, costs, or expenses of Lessor related to Lessor's proposal, negotiations, closing, documentation or other activities related to this RFP or the proposed transaction. In the event that a transaction does not close because of the successful proposer's failure to meet the terms of this RFP, the successful proposer shall be responsible for any and all costs incurred by the District in connection with the failed transaction and its negotiation.

Specifications

Interest Rate: The Lease Proposal must provide interest rate terms for a lease-purchase option to mature on July 25, 2040 and shall state the interest rates under any options at which the proposing firm will provide the District with financing under the Lease. The Proposal must also cite the index and margin used in establishing the interest rates cited.

Prepayment: The Proposal must state that District will have the right, at its option, to prepay the principal portion outstanding on the Lease, in whole or in part, at any time following 30 days written notice to the Lessor. The Proposal must disclose additional fees and terms, if any, that are required upon the execution of this prepayment right, in addition to interest payable. The Proposal must also disclose how such amounts are to be calculated in the event that the District exercises its right of partial or whole prepayment. The proposal shall include an option to prepay without penalty or premium at any time, with no additional fees or charges of any kind. **Subject to the terms of the Inflation Reduction Act, the District may be eligible for a grant for a portion of the project. The District retains the ability to make an additional one time prepayment of the loan on account of grants, rebates or other funds received on account of the project.**

Lease Payments: The District will make periodic payments to the Lessor under the Lease. The Lease shall separately state the principal and interest component of the periodic payments to be made thereunder. The total of these payments, which include both principal and interest components made by the District each year throughout the term of the Lease, shall result in substantially level or declining annual debt service (without taking into account projected State aid or annual energy savings). Debt service payments shall be detailed in an amortization schedule prepared by the proposer and provided to the District with its Proposal. For illustrative purposes, please assume a closing date of July 25, 2025 when developing an amortization schedule. Thereafter, debt service payments will be made semiannually in arrears on each July 25 and January 25 with the first debt service payment to be interest only due on July 25, 2026 and the first principal and interest payment to be on July 25, 2027. Thereafter, semi-annual lease payments will be both principal and interest. Lessor shall provide a statement and thirty days notification prior to each payment due date.

The Proposal must state that the interest rate and other terms cited in the proposal will be good through August 15, 2025. The Lease shall not become effective until the delivery of funds.

Term: The Lease-Purchase Agreement is scheduled to close on or around July 25, 2025 and mature on July 25, 2040.

Escrow: Upon closing, it is anticipated that lease proceeds will be deposited and collateralized in an interest bearing escrow account to be utilized over the course of project construction (the "Project Fund"). The District shall not be responsible for any costs, fees, expenses or charges of any kind associated with establishment, maintenance, administration, transfer or termination of escrow account. The escrow provider must be a bank or trust company located and authorized to do business in New York State (the "Escrow Agent"). Investment and collateralization of the moneys in such fund will be solely at the direction of the District and must be in compliance with the New York State General Municipal Law Sections 10 and 11 as well as District investment policy. **A copy of the District's Investment Policy is attached to this RFP**. The Escrow Agent shall be an agent of the District. The Project Fund shall be free of any security interest of the Escrow Agent.

1. At the option of the District, the moneys in the Project Fund may be held uninvested in the Project Fund. If invested, the Escrow Agent shall invest amounts on deposit in the Project Fund solely at the written direction of an Authorized Officer of the District. All investments made shall be subject to the following conditions:

(a) Such obligations shall be payable or redeemable at the option of the owner within such times as the proceeds will be needed to meet expenditures for purposes for which the moneys were provided and, in the case of obligations purchased with the proceeds of bonds or notes, shall be payable or redeemable in any event, at the option of the owner, within two years of the date of purchase. Any obligation that provides for the adjustment of its interest rate on set dates shall be deemed to be payable or redeemable for purposes of this paragraph on the date on which the principal amount can be recovered through demand by the holder thereof.

(b) Such obligations, shall be registered or inscribed in the name of the District and shall be purchased through, delivered to and held in the custody of the Escrow Agent. Such obligations shall be purchased, sold or presented for redemption or payment by such Escrow Agent in obligations only in accordance with prior written authorization from an Authorized Officer. All such transactions shall be confirmed in writing to the District by the Escrow Agent.

2. All investments described above shall be made and ownership recorded in accordance with all applicable requirements of Section 10 and Section 11 of the General Municipal Law, including the required collateralization of escrow funds.

3. The Escrow Agent will expressly acknowledge that the Lessee is not authorized to invest in mutual funds registered with the Securities Act of 1933, as amended and operated in accordance with Rule 2a-7 of the Investment Company Act of 1940, as amended, including no-load money market mutual funds limited to investments in obligations of or guaranteed by the United States of America or in obligations guaranteed by agencies of the United States of America where the payment of principal and interest are guaranteed by the United States of America, or any similar mutual fund or other money market or liquid deposit investment vehicles.

4. Monies and investments in the Escrow Fund shall not be subject to levy, attachment or lien by or for the benefit of the Escrow Agent, or any creditor thereof.

Excess Proceeds: In the event that there are excess proceeds available in the Project Fund at the end of the construction period, proceeds shall be transferred by the Escrow Agent to the Lessor and applied to the next succeeding lease payment and each lease payment thereafter until fully utilized. Such use of funds will not constitute lease prepayment and will not be subject to administrative fees or charges.

UCC Filing: The District will not provide a legal description for each District property in connection with this financing. In the event the winning proposer requires this information for the purposes of making a fixture filing pursuant to the applicable provisions of the Uniform Commercial Code, the winning proposer shall obtain such information at its own effort and expense.

Warranties: All manufacturers' warranties, expressed or implied with respect to the Equipment acquired shall be assigned by the Lessor to the District.

Annual Appropriation: The District's obligation to make lease payments is subject to appropriation each year by the Board of Education of the District.

Non-Funding/Executory Clause: Pursuant to the General Municipal Law §109-b, and the Energy Law §9-103, the Lease-Purchase Agreement shall contain an executory clause which shall state that should payments not be appropriated by the District in any fiscal year; the District will not be obligated to pay the amounts due beyond the end of the last funded fiscal year and no liability on account thereof shall be incurred by the District beyond the amount of such monies. The financing contract is not a general obligation of the District. Neither the faith and credit nor the taxing powers of the District are pledged to the payment of any amount due or to become due under the financing contract. In the case of a failure to appropriate, the sole security under the Lease shall be the Equipment. Prior to the sale or seizure of such equipment, the District shall be provided adequate written notice, no less than ninety (90) days, to cure any default. Should such a sale or seizure take place there shall be no disruption to the District's operation to the extent possible. Any such sale or seizure must be conducted in conformity with all applicable law, including the New York Uniform Commercial Code.

Financing Documents: Upon submission of the proposal and following notification of the award, the prospective Lessor must provide the District with a draft of its proposed financing documents, which will incorporate proposed terms and append sample documents provided with submission. Proposed financing documents and notification of credit approval for the transaction will be due no later than June 30, 2025. All financing documents are subject to modification by District counsel. Closing is subject to successful negotiation and approval of all documents by counsel to the District, and the District shall have no liability or obligation if closing does not occur due to failure to reach agreement on documentation or obtain necessary approvals. The District reserves the right to rescind any award due to failure of successful negotiation of the parties to agree to the terms and conditions thereof and to recover its costs in connection therewith. Unless otherwise provided by a duly adopted Resolution of the Board of Education, the prospective Lessor is advised that the President of the Board of Education is the sole authorized representative of the District for the purpose of signing financing documents.

Lease Termination: Upon termination of a Lease through exercise of Lessee's option to prepay or through payment by Lessee of all Rental Payments and other amounts due with respect to such particular Equipment, Lessor's security interest in such Equipment shall terminate, and Lessor shall execute and deliver to Lessee such documents as Lessee may reasonably request to evidence the termination of Lessor's security interest in such Equipment.

Tax Status: The Lease shall qualify as a tax-exempt lease financing, that is, the interest component of the Lease will be exempt from Federal, New York State and, where applicable, New York City taxation. The Lease-Purchase Agreement will not be designated as "a qualified tax-exempt obligation" pursuant to Section 265(b)(3)(B) of the Internal Revenue Code of 1986, as amended (the "Code"). The District will not defend or hold the Lessor harmless from any adverse changes in the tax status of the transaction, after tax yield or cash flows resulting from changes in the Federal or State tax codes or regulations.

Credit Rating: Moody's Investors Service has assigned a rating of "Aa2" to the outstanding bonds of the District.

Binding Authority: Each Proposal must be signed by an individual who is legally authorized to contractually bind the proposing firm.

Purchase Price and Certificate: The Lessor must submit to the District a certificate (the "Issue Price Certificate"), satisfactory to Bond Counsel, prior to the delivery of the Agreement, assuming the Lessor does not reoffer the Agreement to the general public, which states that the Lessor has purchased the Agreement for its own account and not with a view to distribution or resale and not in the capacity of a bond house, broker or other intermediary, and the price or prices at which such purchase was made, in such form and including such additional information as the District and Bond Counsel shall reasonably require.

Financial Information: The audited financial statements for the FYE June 30, 2020 through and including June 30, 2024 and the Energy Performance Contract may be found on Munistat's website: www.munistat.com.

Evaluation Process

During the evaluation process, the District reserves the right, where it may serve the District's best interest, to request additional information or clarifications from proposers, or to allow corrections of error or omissions.

Amendments to RFP

Any verbal information obtained from or statements made by the representative of the District or its designee at the time of examination of the documents or site shall not be construed as, in any way, amending RFP documents or binding upon the District. Only such corrections or addenda that are issued in writing to all proposers shall become a part of the RFP. Any addendum issued during RFP process shall be included in the RFP response and become a part of any subsequent contract agreement.

Legal Requirements

The Lease is required to conform to the laws of the State of New York, including, but not limited to, General Municipal Law, Local Finance Law, Education Law, Energy Law and regulations promulgated by the Commissioner of Education and the Office of the State Comptroller.

Submission Requirements

Proposals are due by 4:00 p.m. on Monday, June 30, 2025 by e-mail to:

Noah Nadelson, CEO
Munistat Services, Inc
12 Roosevelt Avenue
Port Jefferson Station, NY 11776
Tel: (631) 331-8888
nnadelson@munistat.com

Questions regarding this RFP may be directed to Noah Nadelson.

Basis of Award

The District reserves the right, in its sole discretion, to reject any and all proposals, or any part thereof, received in response to this Request for Proposals, to re-solicit for new proposals, to waive formalities, to request additional information from any proposer, and to award and negotiate the terms of the contract with any proposer. The District intends to select the firm whose proposal is most advantageous to the District and meets the District's needs or this lease-purchase agreement, and not necessarily the firm with the lowest cost proposal. In determining which proposal is most advantageous and in the District's best interests, the District will evaluate, among other things, the overall financing cost (inclusive of any interest and fees) to the District, optional redemption provisions, responsiveness of each proposal to the terms of this RFP and applicable law, the terms and conditions of the proposed agreement, experience and reputation of the proposer in the State of New York. The District shall not have any liability to any proposer for any costs, expenses, losses or damages of any nature incurred in connection with preparing and submitting a response to this request for proposals.

All proposals shall be signed by an individual legally authorized to bind the proposing firm and the signer's name shall also be typed or printed to or under the signature together with his/her title or designation.

Following receipt of the completed proposals, tentative notification may be made to the prospective Lessor whose response best meets the District's needs, in the District's sole discretion and otherwise appears to meet the basis for award. It is expected that a formal award will be made by the Board of Education at a meeting date to be determined in late July or early August, subject to and contingent upon final review of the Lease Purchase Agreement and all financing documents by the District's legal counsels. Note that the prospective Lessor must provide the District with a draft of its proposed financing documents, together with notification of credit approval in order for District officials to accept and grant final approval.

Tax Opinion

The successful proposer will be furnished without cost with the opinion as to tax exemption of the law firm of Hawkins Delafield & Wood LLP ("Bond Counsel"). The opinion of Bond Counsel shall contain statements to the effect that, in the opinion of said law firm, under existing statutes and court decision and assuming continuing compliance with certain tax certifications described in the Tax Certificate of the District, (i) the portion of the rental payment designated as and constituting interest paid by the District is excluded from gross income for federal income tax purposes under Section 103 of the Code; and (ii) such interest component is not treated as a preference item in calculating the alternative minimum tax under the Code; however, such interest component is included in the "adjusted financial statement income" of certain corporations that are subject to the alternative minimum tax under Section 55 of the Code The Tax Certificate of the District, which will be delivered concurrently with the delivery of the lease will contain provisions and procedures relating to compliance with applicable requirements of the Code.

Opinion of School Attorney

At closing, the District shall furnish a validity opinion of Guercio & Guercio LLP ("School Attorney"), dated the closing date, including a statement to the effect that there is no controversy or litigation of any nature pending or threatened to restrain or enjoin the execution or delivery of the installment financing agreement, to the best of the School Attorney's knowledge and based on representations made by the District.

Summary of Estimated Dates

RFP sent to providers:	June 18, 2025
Proposal Due:	June 30, 2025 (by 4:00 p.m.)
Selected Lessor Tentatively Approved:	July 7, 2025*
Closing of Lease:	July 25, 2025

*Subject to formal award by Trustees of the Board of Education. The District reserves the right to modify these dates.

Thank you for your interest in the Babylon Union Free School District.

END OF RFP

APPENDIX A

FINANCIAL INFORMATION

Babylon Union Free School District – Total Project

Equipment Cost Breakdown and Expected Life

ECM Description	Total Project	
	Project Price	ECM Life (Years)
ECM 01- Lighting Interior	$ 708,285	15
ECM 02 - Lighting Exterior	$ 4,637	15
ECM 03A - Solar PV - Babylon ES	$ 1,101,077	25
ECM 03B - Solar PV - Babylon Grade School	$ 1,157,430	25
ECM 03C - Solar PV - Babylon Jr.Sr High School	$ 2,368,727	25
ECM 04 Roof Restoration at Grade School	$ 763,152	25
ECM 05 Building Envelope Upgrades	$ 108,034	15
ECM 06 Piping Insulation	$ 98,217	30
ECM 07 Steam Trap Upgrades-Retrofit	$ 133,329	15
ECM 08 Boiler Replacements	$ 1,367,477	25
ECM 09 Walk-IN Cooler/Freezer Controls	$ 11,263	15
ECM 10 Plug Load Controls	$ 116,386	15
ECM 11 Retrocommissioning	$ 190,541	15
ECM 12 - Exhaust Fan Controls for Air Quality	$ 454,766	20
ECM 13A Building Controls - Upgrades	$ 554,405	20
ECM 13B Building Controls - AHU Units with DCV	$ 136,430	20
Total	**$ 9,274,156**	

ECM Description	Babylon Elementary School	
	Project Price	ECM Life (Years)
ECM 01- Lighting Interior	$ 165,179	15
ECM 02 -Lighting Exterior	$ 2,022	15
ECM 03A - Solar PV - Babylon ES	$ 1,101,077	25
ECM 03B - Solar PV - Babylon Grade School	$ -	25
ECM 03C - Solar PV - Babylon Jr.Sr High School	$ -	25
ECM 04 Roof Restoration at Grade School	$ -	25
ECM 05 Building Envelope Upgrades	$ 41,774	15
ECM 06 Piping Insulation	$ 27,496	30
ECM 07 Steam Trap Upgrades-Retrofit	$ -	15
ECM 08 Boiler Replacements	$ 610,162	25
ECM 09 Walk-IN Cooler/Freezer Controls	$ 5,632	15
ECM 10 Plug Load Controls	$ 25,235	15
ECM 11 Retrocommissioning	$ 51,943	15
ECM 12 - Exhaust Fan Controls for Air Quality	$ 90,143	20
ECM 13A Building Controls - Upgrades	$ 159,684	20
ECM 13B Building Controls - AHU Units with DCV	$ 51,071	20
Total	**$ 2,331,418**	

ECM Description	Babylon Memorial Grade School	
	Project Price	ECM Life (Years)
ECM 01- Lighting Interior	$ 120,085	15
ECM 02 -Lighting Exterior	$ 1,791	15
ECM 03A - Solar PV - Babylon ES	$ -	25
ECM 03B - Solar PV - Babylon Grade School	$ 1,157,430	25
ECM 03C - Solar PV - Babylon Jr.Sr High School	$ -	25
ECM 04 Roof Restoration at Grade School	$ 763,152	25
ECM 05 Building Envelope Upgrades	$ 27,587	15
ECM 06 Piping Insulation	$ 14,848	30
ECM 07 Steam Trap Upgrades-Retrofit	$ -	15
ECM 08 Boiler Replacements	$ -	25
ECM 09 Walk-IN Cooler/Freezer Controls	$ -	15
ECM 10 Plug Load Controls	$ 23,171	15
ECM 11 Retrocommissioning	$ 51,945	15
ECM 12 - Exhaust Fan Controls for Air Quality	$ 135,236	20
ECM 13A Building Controls - Upgrades	$ 167,458	20
ECM 13B Building Controls - AHU Units with DCV	$ 34,318	20
Total	**$ 2,497,020**	

ECM Description	Babylon High School	
	Project Price	ECM Life (Years)
ECM 01- Lighting Interior	$ 423,021	15
ECM 02 -Lighting Exterior	$ 823	15
ECM 03A - Solar PV - Babylon ES	$ -	25
ECM 03B - Solar PV - Babylon Grade School	$ -	25
ECM 03C - Solar PV - Babylon Jr.Sr High School	$ 2,368,727	25
ECM 04 Roof Restoration at Grade School	$ -	25
ECM 05 Building Envelope Upgrades	$ 84,525	15
ECM 06 Piping Insulation	$ 55,872	30
ECM 07 Steam Trap Upgrades-Retrofit	$ 133,329	15
ECM 08 Boiler Replacements	$ 711,463	25
ECM 09 Walk-IN Cooler/Freezer Controls	$ 5,632	15
ECM 10 Plug Load Controls	$ 67,980	15
ECM 11 Retrocommissioning	$ 86,653	15
ECM 12 - Exhaust Fan Controls for Air Quality	$ 229,388	20
ECM 13A Building Controls - Upgrades	$ 227,263	20
ECM 13B Building Controls - AHU Units with DCV	$ 51,041	20
Total	**$ 4,445,718**	

Contract Amount $9,274,156

1	Jul-25	1st Draw (Construction Begins)	$1,391,123	15%
2	Aug-25	2nd Draw	$927,416	10%
3	Sep-25	3rd Draw	$927,416	10%
4	Oct-25	4th Draw	$927,416	10%
5	Nov-25	5th Draw	$927,416	10%
6	Dec-25	6th Draw	$927,416	10%
7	Jan-26	7th Draw	$834,674	9%
8	Feb-26	8th Draw	$741,932	8%
9	Mar-26	9th Draw	$556,449	6%
10	Apr-26	10th Draw	$370,966	4%
11	May-26	11th Draw (Substantial Completion)	$278,225	3%
12	Jun-26	12th Draw	$185,483	2%
13	Jul-26	13th Draw	$185,483	2%
14	Aug-26	14th Draw (Final Construction Ends)	$92,742	1%
Total			$9,274,156	100%

APPENDIX B

ENERGY PERFORMANCE AGREEMENT

ENERGY PERFORMANCE CONTRACT

THIS ENERGY PERFORMANCE CONTRACT (herein sometimes "Agreement" and sometimes "Contract"), is made this 31st day of May, 2024, by and between Babylon Union Free School District, Babylon, New York, a political subdivision (hereinafter called "District" or "Owner" or "School District") and Energy Systems Group, LLC, an Indiana limited liability company (hereinafter called "Contractor" or "ESG" or "Energy Performance Contractor").

WITNESSETH, That:

WHEREAS, pursuant to New York Energy Law §9-101 through 9-103 and the Regulations of the Commission of Education, 8 NYCRR Section 155.20. Energy performance contracts, the Owner publicly advertised its Request for Proposals for a District-Wide Energy Performance Project ("RFP"); and

WHEREAS, Contractor submitted to Owner a proposal, and completed a Comprehensive Energy Audit (or "CEA") Report for a District-Wide Implementation of Energy Conservation Measures ("ECMs") on a Performance Contracting Basis for the construction and/or installation of energy related upgrades at facilities owned by Owner and located in Suffolk County, New York (herein the "Facilities"); and

WHEREAS, Owner wishes to accept Contractor's proposal to perform the work described in Exhibit A - Scope of Work (hereinafter the "Work"), subject to review and approval by the New York State Education Department and Owner and Contractor desire to enter into this Agreement to memorialize their respective agreements and undertakings with respect to the Project.

NOW, THEREFORE, in consideration of the mutual covenants, promises, and agreements herein contained, the parties hereto agree as follows:

1. Contract Documents. The parties hereby incorporate by reference, as if fully set forth herein, the following documents and instruments, all of which together with this Agreement are herein referred to as the "Contract Documents":

Schedule 1 - Final Acceptance Certificate
Schedule 2 - Partial Acceptance/Substantial Completion Certificate
Exhibit A - Scope of Work
Exhibit B - Energy Savings Guarantee and Measurement and Verification Plan
Exhibit C - Opinion of Owner's Counsel
Exhibit D - State Specific Statutory Requirements

Exhibit E - Wage and Hours Provisions; Prevailing Wage Determination

The Contract Documents also shall include any permissible change orders issued pursuant to this Agreement.

If there is a conflict between the provisions of this Agreement and any other Contract Document, the provisions of this Agreement shall control with respect to the subject matter hereof.

2. Scope of Project. For purposes hereof, the term "Project" shall mean and include the installation of the energy conservation measures and related upgrades ("ECMs" or "Measures") at Owner's Facilities, which are defined in Exhibit A, Scope of Work, which will result in the benefits as set forth in the Energy Savings Guarantee and Measurement and Verification Plan as outlined in Exhibit B. For purposes of this Contract, the term "Work" shall mean and include the scope of work detailed in Exhibit A.

2.1 Dodd-Frank Municipal Advisor Rule Statement: ESG is retained by Owner as an engineering and energy services firm to design and deliver energy-related and other infrastructure solutions described in the Scope of Work. Owner acknowledges that ESG is not a financial advisor or municipal advisor as contemplated under the U.S. securities laws, is not providing recommendations regarding any municipal financial product or the issuance of municipal securities, and does not owe a fiduciary duty to Owner under section 15B of the Securities Exchange Act, or otherwise. Owner acknowledges that as a commercial entity ESG is influenced by its own interests, which will not always be the same as Owner's. Owner has had the opportunity to retain and consult with such financial, municipal, legal or other advisors as it may deem appropriate regarding this Project.

3. General Obligations and Rights of Contractor. Contractor shall do all acts and provide all things necessary to perform and complete the Project properly, in a good and workmanlike manner, and in compliance with all applicable laws and regulations. Contractor shall apply for, secure, and obtain all necessary construction permits which may be required in connection with the Project.

3.1 Warranty. Contractor hereby warrants to Owner that all materials furnished by Contractor, if any, and/or its subcontractor(s), if any and all workmanship performed by Contractor and/or its subcontractor(s) in connection with the Project, shall be in accordance with the general

industry standards of the construction industry; shall be performed in a competent, good and workmanlike manner and in compliance with the Contract Documents, and all applicable laws, rules and regulations; and shall be free from any and all faults or defects in material and workmanship. Contractor shall promptly remedy any and all defective materials or workmanship furnished by Contractor or any subcontractor upon receipt of written notice thereof from Owner. Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear. If required by Owner, Contractor shall furnish satisfactory evidence as to kind and quality of materials and equipment used in connection with the Project.

The warranty set forth herein shall continue to be effective for a period of two years following Owner's acceptance or beneficial use of each ECM, acceptance of a particular Facility, or acceptance of the Work, whichever comes first. Owner shall give Contractor written notice of all defective Work, specifically detailing the deficiencies to be corrected, and Contractor shall repair or otherwise remedy such defective Work in an expeditious manner.

CONTRACTOR MAKES NO OTHER WARRANTIES, EXPRESS, IMPLIED, STATUTORY OR OTHERWISE INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Contractor makes no warranty or representation of any kind regarding reducing, preventing, eliminating or inhibiting the transmission or spread of contaminants or pathogens (including COVID-19 and any other virus) in connection with the Work or services provided under this Agreement. To the extent possible, Contractor shall assign to Owner all warranties that Contractor receives from its vendors and/or subcontractors for any materials or equipment, which are or are to become permanent features of the Project, which shall be in addition to the other warranties provided herein.

3.2 Indemnification. Contractor shall indemnify, defend, and hold harmless Owner, the agents, officers, employees, and representatives of Owner (herein the "Indemnified Owner Parties") against all liability and loss including reasonable attorney's fees and expenses to the extent resulting from the negligence or willful misconduct in connection with the Project by Contractor, any subcontractor, or the agents, employees, or representatives of Contractor or any subcontractor, including any injury (including death) sustained by or any damage to the property of, any person; provided however, that Contractor shall not be responsible for any injury (including death), damage, or loss (including reasonable attorneys fees and expenses) that is caused by the sole negligence of

an Indemnified Owner Party, nor shall Contractor be held responsible for the concurrent negligence of an Indemnified Owner Party.

Contractor agrees to indemnify, defend and hold Owner, its successors and assigns, and any assignee of Contractor, harmless from the payment of any sum of money whatsoever (including reasonable attorneys' fees and expenses) on account of any laborer's, mechanic's, materialmen's or any other lien against Owner's property related to Contractor's performance of the Project, unless the lien is caused by some fault of Owner or some person or entity acting on Owner's behalf.

Owner shall indemnify, defend and hold harmless Contractor, and the agents, officers, shareholders, directors, and employees of Contractor and any assignee of Contractor (herein the "Indemnified Contractor Parties") against all liability and loss including reasonable attorney's fees and expenses to the extent resulting from the negligence or willful misconduct in connection with the Project by Owner and agents, employees or representatives of Owner, including any injury (including death) sustained by or any damage to the property of, any person; provided, however, that Owner shall not be responsible for any injury (including death), damage or loss (including reasonable attorneys' fees and expenses) which is caused by the sole negligence of an Indemnified Contractor Party, nor shall Owner be held responsible for the concurrent negligence of an Indemnified Contractor Party.

As a condition precedent to the duties to indemnify, defend and/or hold harmless (collectively "Indemnification") established in this Contract, the indemnified party must provide prompt notice to the indemnitor of a claim or matter for which Indemnification is sought, must allow the indemnitor to select counsel and control the defense, must cooperate with indemnitor at indemnitor's expense, and must allow the indemnitor to settle the matter at its expense.

3.3 Bonds. Before commencing work under this Agreement, Contractor shall execute for the benefit of Owner, a Performance Bond and Payment Bond with a surety licensed by the State of New York and in a form acceptable to Owner. Each bond shall be in an amount equal to the Contract Price (as defined below in Section 5 of this Agreement) and shall be delivered to the Owner promptly upon its issuance of a notice to proceed. A rider including the following provisions must be attached to each Bond:

A. Surety hereby agrees that it consents to and waives notice of any addition, alteration, omission, change, or other modification of the Contract Documents, or a forbearance on the part of

either the Owner or the Contractor to the other, shall not release the surety of its obligations hereunder and notice to the surety of such matter is hereby waived.

B. Surety further agrees that in event of any default by the Owner in the performance of the Owner's obligations to the Contractor under this Agreement, the Contractor or surety shall cause written notice of such default (specifying the default in detail) to be given to the Owner, and the Owner shall have thirty (30) days from time after receipt of such notice within which to cure such default, or such additional reasonable period of time as may be required if the nature of such default is such that it cannot be cured within thirty (30) days. Such notice of default shall be sent by certified or registered U.S. Mail, return receipt requested, first class postage prepaid, to the Owner and its lender.

The Performance Bond shall also be a guarantee for the repair or replacement of any portion of the Work that is defective to and including the date of Owner's execution of the Final Acceptance Certificate. Execution by Owner of such Final Acceptance Certificate (see Schedule 1) with respect to the Work shall constitute "Final Acceptance" of such Work performed by ESG and the date of Owner's signature on the Final Acceptance Certificate shall be known as "Final Acceptance Date". The Payment Bond shall be a guarantee for the payment for labor, materials and equipment furnished for use in the performance of Contractor's obligations hereunder. The Performance and Payment Bonds will terminate effective the Final Acceptance Date. Effective immediately thereafter, a Maintenance Bond will be provided for the two-year period commencing on the Final Acceptance Date in the amount of 10% of the total Contract Price. The surety which executes the Performance Bond and Payment Bonds will waive any right to independent notice under this Agreement if Contractor receives such notice, and consents to any extensions of time, modification, waiver, forbearance, or change which may be made in any of the terms and conditions of the Agreement by the parties or by their successors or assigns. Notwithstanding any other provision of this Agreement or the bonds, in no event and in no manner shall coverage under the Performance Bond and Payment Bond extend to Section 3.4, Guaranteed Savings, as further set forth in Exhibit B Energy Savings Guarantee and Measurement and Verification Plan, or any related provisions.

3.4 Guaranteed Savings. The Project will result in energy savings and operational savings as detailed in Exhibit B - Energy Savings Guarantee and Measurement and Verification Plan. Contractor represents and warrants the applicable requirements set forth in Exhibit D, State Specific Statutory Requirements, will be met.

3.5 Limitation of Liability.

3.5.1 The aggregate total liability of Contractor on all claims, whether in contract, warranty, tort, strict liability, indemnity, or otherwise, arising out of the performance of this Agreement, shall in no event exceed the Contract Price. NOTWITHSTANDING ANY OTHER PROVISION HEREIN TO THE CONTRARY, IN NO EVENT SHALL CONTRACTOR BE LIABLE FOR INDIRECT, CONSEQUENTIAL, INCIDENTAL, SPECIAL, SPECULATIVE, PUNITIVE, OR REMOTE DAMAGES INCLUDING, BUT NOT LIMITED TO, LOSS OF PROFITS OR REVENUE, COST OF CAPITAL, AND DOWN TIME COST.

3.5.2 Airborne pathogens and/or contaminants may be transmitted in a variety of ways and circumstances, the aspects of which are currently not completely known. The effectiveness of HVAC systems, products, services and other offerings in reducing the spread of pathogens or contaminants (e.g., COVID-19), including through indoor air, has not been tested. IN NO EVENT WILL EITHER PARTY BE LIABLE UNDER THIS AGREEMENT OR OTHERWISE FOR ANY ACTION OR CLAIM, WHETHER BASED ON WARRANTY, CONTRACT, TORT OR OTHERWISE, FOR ANY BODILY INJURY (INCLUDING DEATH) OR ANY OTHER LIABILITIES, DAMAGES OR COSTS RELATED TO AIRBORNE PATHOGENS, CONTAMINANTS AND/OR COVID-19 (INCLUCING THE TRANSMISSION, SPREAD OR CONTAMINATION THEREOF) (COLLECTIVELY, "PATHOGEN CLAIMS") AND EACH PARTY HEREBY EXPRESSLY RELEASES THE OTHER PARTY FROM ANY SUCH PATHOGEN CLAIMS.

3.6 Insurance.

3.6.1 Obtaining Proper Insurance. Contractor shall not commence performance hereunder until (i) it has obtained and Owner has approved all insurance coverage required by this Section 3.6; and (ii) Owner has been furnished with a certificate of insurance properly evidencing and confirming that Owner is an additional insured on Contractor's public liability and automobile liability policies. All owner approved subcontractors performing Work on behalf of the Contractor shall provide required certificates of insurance which shall evidence insurance and limits of liability similar to those set forth in this Section 3.6.

3.6.2 Amount of Insurance. Contractor shall take out and maintain, at its sole cost and expense, the following insurance coverage during the term of this Agreement and all other times during which Contractor, its employees, agents, or subcontractors shall be present at the Facilities, whether performing or correcting any portion of the Project:

(A) Worker's Compensation, Employer's Liability, and Occupational Disease Insurance. Statutorily required worker's compensation insurance, including employer's liability and occupational disease coverage, to the extent mandated by applicable state law, on all of Contractor's employees engaged in the Project;

(B) Public Liability. Commercial general liability insurance (including contractual, independent contractors, explosion, and product/completed operations coverages) against damage because of bodily injury, including death, or damage to property of others, such insurance to afford protection to the limit of not less than One Million Dollars ($1,000,000.00) in one occurrence, and to the limit of not less than Two Million Dollars ($2,000,000.00) annual aggregate;

(C) Automobile Liability. Automobile liability insurance against damage because of bodily injury, including death, or damage to property of others as the result of the operation of any automobile owned or hired by Contractor, with such insurance to afford protection to the limit of not less than Five Hundred Thousand Dollars ($500,000.00) for any one person, not less than One Million Dollars ($1,000,000.00) in respect to any one accident, and not less than One Hundred Thousand Dollars ($100,000.00) for property damage.

3.7. Builder's Risk Insurance. Contractor shall purchase and maintain a builder's risk insurance policy, providing coverage for the risk of physical loss or damage to the Measures in an amount equal to the completed value of the Work contracted hereunder. This builder's risk insurance policy shall be maintained by Contractor until Substantial Completion of the Work ("Substantial Completion", as used in this Agreement, means that the Work or a designated portion thereof is sufficiently complete so that the Owner can utilize the Work for its intended use). Such builder's risk

insurance policy shall not insure against damage to existing Owner property, but only the Measures installed pursuant to this Agreement. If any of the Measures are damaged or destroyed after they are installed to Owner's Facilities, but prior to Substantial Completion of the Work, the proceeds of such insurance shall be utilized by Contractor to repair or replace such Measures. If any of the Measures are damaged or destroyed after Substantial Completion of the Work, Owner shall be obligated to promptly repair or replace the damaged or destroyed Measures at its sole cost and expense. The Owner as well as Contractor's subcontractors shall be considered "Additional Insureds," insofar as their interests appear, pursuant to ESG's builder's risk insurance policy.

3.8. Reserved.

3.9 Engineering Services. The Owner has selected Energia Engineering, P.C. ("Energia") as the design and engineering services firm for purposes of this Project. ESG shall use and fund the services of the Owner's Engineer, Energia, as the Engineer of Record. As required by Owner's Request for Proposal, ESG will subcontract with Energia to prepare and submit all necessary design work for the Project. Energeia's work and services shall be performed consistent with Energia's professional responsibilities to the Owner pursuant to the applicable provisions of New York law governing professional engineering services.

3.9.1 ESG Direct Payments to Energia. As a matter of administrative efficiency, ESG agrees to pay Energia directly for services performed by Energia, its subconsultants and subcontractors, if any, consistent with the terms of this Section 3.9.1. ESG shall be responsible for making payments directly to Energia as set forth herein. The total design fee ($606,939.00) to be paid to Energia is 7% of the Contract Price (as defined in Section 5.1 below). ESG will make payments to Energia according to the following schedule:

- 30% Upon District Signing Contract with ESG
- 30% Upon Submittal of Plans and Specifications to NYSED
- 30% Upon Approval of Plans and Specification by NYSED
- 10% Upon the issuance of a Certificate of Substantial Completion.

Upon completion of the Project milestones specified in the previous paragraph, ESG's Payments to Energia will be made within thirty (30) days of ESG's receipt of a sufficiently detailed invoice.

ESG agrees that Energia, as the Engineer of Record, shall have the right to all environmental, energy, tax, financial, and electrical-related attributes, rights, credits, benefits and characteristics associated with or arising out of the transactions contemplated by this EPC. This shall include, but not be limited to tax filings under Internal Revenue Code Section 179D. Energia will be designated the sole Section 179D beneficiary. The Owner makes no representations as to the availability of such tax deductions.

In addition to any other legal requirements concerning energy performance contracts, Energia, the Owner's Representative, shall certify that it, and its officers, employees, directors are free from financial interest in ESG which conflicts with the proper completion of the audit and any design work associated with this Contract, and that full disclosure has been made to the Owner detailing all financial compensation received from ESG for the Project.

3.9.2 No Obligation to Ensure Performance; Energia-District Dispute Handled Exclusively By and Between Owner and Energia. Nothing contained within this Agreement shall be construed as creating an obligation or responsibility of any kind on the part of ESG to ensure or confirm in any way Energia's, including its subconsultants and subcontractors, if any, compliance with or performance of its professional services on behalf of the Owner. As a result, any assertion, claim, or dispute between Energia and the Owner concerning Energia's performance of its professional services or Energia's right to receive payment for performing the same (herein, an "Energia-District Dispute") shall be handled exclusively by and between the Owner and Energia. In the event of an Energia-District Dispute, the District reserves the right to direct ESG to halt payments to Energia upon prior written notice and in such event halted or delayed payments shall not incur the interest penalty set forth in Section 3.9.1. Energia shall not have any right or eligibility to make claims against ESG's payment or performance bonds.

3.9.3 No Liability Related to Energia's Performance of Engineering Services. Notwithstanding any other provision in this Contract to the contrary, in no event shall ESG be liable to the Owner for Energia's failure to properly perform its engineering services for or on behalf of the Owner. Owner agrees to look solely to Energia for any deficiencies in the design and engineering services provided by Energia.

4. Title and Risk of Loss. Risk of Loss for all equipment and materials provided by Contractor or any subcontractor pursuant to this Agreement shall transfer to Owner upon Substantial Completion of the Work. Title to a Measure shall vest with Owner upon the earlier occurrence of (i) installation and payment for such Measure(s) to Contractor; (ii) the Owner's written acceptance of a particular Measure or Facility, as the case may be, in the form of Schedule 2 (the "Partial Acceptance Certificate"); or (iii) the Owner's written acceptance of all of the Work in the form of Schedule 1 (the Owner's "Final Acceptance Certificate"). It is the intent of all parties that any transfer of title to Owner pursuant to this Agreement shall occur automatically without the necessity of any bill of sale, certificate of title, or other instrument of conveyance.

Owner shall be responsible for operating and maintaining all Measures that are installed. Further, Owner represents that it is a governmental entity and that it will cooperate with Contractor and will provide the same with appropriate documentation so that the Contractor may establish that it shall not be required to pay taxes, fees, assessments, or other charges of any character which may be imposed or incurred by any governmental or public authority as an incident to title to, ownership of, or operation of the ECMs installed during this Project.

4.1 Waiver of Subrogation. Owner and Contractor hereby release each other and each other's employees, agents, and subcontractors from any and all liability for any loss of or damage or injury to person or property arising during the Project by reason of fire or other casualty or any other risk or cause which is or which is required to be insured against under this Agreement, regardless of cause, including the negligence of Owner or Contractor and their respective employees, agents, and subcontractors, and agree that all insurance carried by either of them shall contain a clause whereby the insurer waives its right of subrogation against the other party. Because the provisions of this paragraph are intended to preclude the assignment of any claim mentioned herein by way of subrogation or otherwise to an insurer or any other person, each party to this Agreement shall give to each insurance company which has issued to it one or more policies of insurance required by this Agreement notice of the provisions of this paragraph and have such insurance policies properly endorsed, if necessary, to prevent the invalidation of such insurance by reason of the provisions of this paragraph.

5. Contract Price and Payments.

5.1 Contract Price. In consideration of Contractor's performance of the Work, Owner shall pay Contractor the sum of Nine Million Two Hundred Seventy-Four Thousand One Hundred

Fifty-Six Dollars ($9,274,156.00) (herein the "Contract Price"), in accordance with the provisions of this Section 5.

5.2 Concerning Payment of the Contract Price. The following provisions shall apply to payment of the Contract Price:

5.2.1 Applications for Payment. Payment of the Contract Price shall be made in monthly installments based upon Contractor's progress in completing the installation of the Work, except that Contractor shall be paid an "Initial Payment" equal to 25% of the Contract Price, which shall compensate Contractor for preconstruction work and services performed at Contractor's sole cost and risk prior to the execution of this Agreement. The request for such Initial Payment shall be submitted to Owner upon the execution of this Agreement. Contractor shall not submit to Owner any additional invoices until such time as Contractor has performed Work with a cumulative value in excess of the Initial Payment described herein.

With respect to monthly progress payments, Contractor shall submit to Owner each month, an application for payment on a form mutually agreeable to Contractor and Owner. Owner shall pay or cause to be paid such invoice within 30 days of receipt. For payments not timely made, interest shall accrue at 10% per annum.

5.2.2 Completion and Inspection; Acceptance. When Contractor reasonably believes that an ECM, a Facility or all of the Work is substantially complete, it shall notify Owner that such ECM, Facility or all of the Work is ready for inspection and acceptance. Within five business days following such notification, the Owner shall commence to conduct such inspections as it deems necessary or appropriate in order to determine that the ECM, Facility, or all of the Work, as the case may be, is free from defects and that the installation of the ECM, Facility, or all of the Work, as the case may be, has been completed in conformity with the Contract Documents. If any aspect of the ECM, Facility, or all of the Work, as the case may be, shall be incomplete as of the date of such inspection, Owner shall notify Contractor in writing as to the items that render the ECM, Facility, or all of the Work, as the case may be, incomplete (such writing herein referred to as the "Punch List").

Contractor shall, at its expense and without further cost to Owner, undertake to perform such work as will complete the Punch List in compliance with the Contract Documents as soon as practicable. Contractor retains the right to dispute whether an item or items on the Punch List is required by the Contract Documents. If Contractor does not satisfactorily complete the Punch List agreed to by Owner and Contractor by a date 30 days following Owner's submission of the agreed to Punch List, Owner shall have the right to order Contractor to stop any further work on the agreed to Punch List and Owner shall be entitled to complete the agreed to Punch List. In such event, Contractor shall be responsible for all costs incurred by Owner in completing the agreed to Punch List and Owner shall have the right to deduct all such costs from any payment then or thereafter due to Contractor. If such cost exceeds the balance of the Contract Price then or thereafter due Contractor, Contractor shall pay such excess to Owner within 10 days following Owner's demand therefor.

Periodically during the performance of the Work, the Owner agrees to provide Contractor with written notice of the Owner's acceptance of a particular ECM or Facility, as the case may be, in the form of Schedule 2 (the "Partial Acceptance Certificate"). Following Contractor's completion of the Work and completion of the agreed to Punch List, Owner agrees to provide Contractor prompt written notice of its acceptance of all of the Work by executing and delivering Schedule 1 to the Contractor (the Owner's "Final Acceptance Certificate") upon satisfaction of the following conditions:

A. Contractor shall have completed the agreed to Punch List to Owner's reasonable satisfaction and Contractor shall have corrected any other non-conforming items or condition, if any, reported to it by Owner;
B. Contractor shall have furnished to Owner's reasonable satisfaction, evidence that all equipment and labor costs incurred or accrued in connection with the Work have been or will be promptly paid; and
C. Contractor shall have delivered to Owner all drawings and documents required to be furnished by Contractor pursuant to the Contract Documents.

If Owner is required to complete the agreed to Punch List, the Final Acceptance Date shall be extended to the date upon which the Work is completed by Owner, or any person retained by Owner, in accordance with the Contract Documents.

5.2.3 Final Payment. Any sums due and owing in respect of the Contract Price shall be payable to Contractor within 10 calendar days after the date Owner delivers a signed Schedule 1 to the Contractor, signifying the Owner's Final Acceptance of the Work

6. Independent Contractor. It is understood and agreed by the parties hereto that Contractor shall perform the Project according to its own means and methods and shall for all purposes be an independent contractor. All persons employed by Contractor in connection with the Project shall be paid directly by Contractor, and shall be subject to Contractor's orders and supervision. It is understood and agreed that the Contractor, its employees, agents, subcontractors, and employees of such agents and subcontractors, shall adhere to the Owner's policies with respect to conduct on the Owner's property as well as any and all applicable federal, state, and local laws, rules, ordinances, municipality policies, and procedures.

7. Defective Work. Contractor shall, within forty-eight hours after receiving written notice from Owner to that effect, proceed to remove from the Facilities all materials that fail to conform to the Contract Documents.

8. Termination.

8.1 Owner's Right to Terminate. Should Contractor fail to perform any material term or condition of the Contract Documents, Owner shall be at liberty, after 30 days written notice to Contractor and Contractor's failure to remedy the problem within that time period, to terminate this Agreement and to enter upon the Facilities and take possession of the equipment and materials for the purpose of completing the Work to be done under this Contract, to use all materials of Contractor available for such Work, and to employ any other person or persons to finish the Work and to provide such additional materials therefor as may be necessary; and in case of such termination of the employment of Contractor, Contractor shall not be entitled to receive any further payment under this Contract until the Work shall be wholly finished, at which time if the unpaid balance of the amount to

be paid under the Contract shall exceed the expense incurred by Owner in finishing the Work, such excess shall be paid by Owner to Contractor, but if such expense shall exceed such unpaid balance, Contractor shall pay the excess to Owner. The expenses incurred by Owner as herein provided, either for the furnishing of materials or for finishing the Work, shall be certified by Owner, and payment shall be made upon such certification.

8.2 Contractor's Right to Terminate or Stop Work. Should Owner fail to perform any material term or condition of the Contract Documents, Contractor shall be at liberty, after 30 days written notice to Owner and Owner's failure to remedy the problem within that time period, to terminate this Agreement or stop Work. If Contractor elects to stop Work, Contractor shall not be required to recommence Work until such time as Owner has completely remedied its breach.

9. Delays. Should Contractor be obstructed or delayed in the prosecution or completion of the Work or the performance of its obligations under the Energy Savings Guarantee and Measurement and Verification Plan specified in Exhibit B by the act, negligence, delay, or default of Owner or by any other damage, act or cause beyond the reasonable control of Contractor or any subcontractor, including but not limited to, an act of God; war (declared or undeclared); sabotage; riot; epidemic/pandemic or quarantine; government action; insurrection; civil unrest or disturbance; terrorism; civil strike, work stoppage, slow-down, or lock-out; inability to obtain labor, material, equipment or transportation; explosion; fire; earthquake; abnormal weather condition or actions of the elements; hurricane; flood; lightning; wind; drought; the binding order of any governmental authority; or the failure to act on the part of any governmental authority, then the time herein fixed for the completion of Contractor's obligations specified in the Agreement shall be extended for a period equivalent to the time lost by reason of such event. If Contractor is delayed by actions or inactions of Owner or its agents or employees, Owner shall be required to reimburse Contractor for its additional costs incurred as a result of such delay.

10. Contractor to Furnish Required Notices. Contractor shall provide all notices required by applicable state or federal law or regulation or by applicable local ordinances or rules, at such times and in the form required by said laws, regulations, ordinances, or rules, and Contractor hereby acknowledges receipt of notice from Owner to furnish same.

11. Nondiscrimination in Hiring Employees.

A. Contractor, its subcontractors, and suppliers shall not discriminate against any employee or applicant for employment to be employed in the performance of this Contract with respect to his or her hire, tenure, terms, conditions, or privileges of employment or any matter directly or indirectly related to employment, because of race, color, religion, sex, disability, national origin, ancestry or military status.

B. Since this Contract involves the construction, alteration, or repair of a public building or public work, Contractor agrees:

(1) That in the hiring of employees for the performance of Work under this Contract or any subcontract hereunder, Contractor, subcontractor or any person acting on behalf of Contractor or subcontractor shall not, by reason of race, religion, color, sex, national origin, or ancestry, discriminate against any citizen of the State of New York who is qualified and available to perform the Work to which the employment relates; and

(2) That Contractor, a subcontractor, or any person on his or their behalf shall not, in any manner, discriminate against or intimidate any employee hired for the performance of Work under this Contract on account of race, religion, color, sex, national origin, or ancestry.

C. If required by applicable state statute, Contractor or any subcontractor of Contractor shall be required to pay for each class of work on such project a scale of wages which shall in no case be less than the prevailing wages being paid in the immediate locality for such class of work. As part of this Contract, if applicable, there is incorporated by reference herein a prevailing scale of wages.

D. The Contractor and all subcontractors shall submit to the School District, within thirty days after issuance of its first payroll, and every thirty days thereafter, a transcript of the original payroll record, subscribed and affirmed as true under penalties of perjury, as provided by Article 8, Section 220 of the NYS Labor Law. The Contractor shall require that appropriate procedures are in place to ensure this provision and all other requirements under Section 220 of the NYS Labor Law are carried out.

E. The original payrolls or transcripts shall be preserved for three years from the completion of the work on the awarded project.

12. Miscellaneous Provisions.

12.1. Governing Law. This Agreement shall be construed in accordance with and governed by the laws of the State of New York. Each of the parties hereto consents to the jurisdiction of any state court located within the County of Suffolk, State of New York,

12.2. Notices. Unless otherwise specifically provided herein, any notice, consent, request, demand, report or statement (herein "Notice"), which is required or permitted to be given to or served upon either party hereto by the other party hereto under any of the provisions of this Agreement shall be in writing and deemed to be duly delivered when (i) personally delivered to Contractor, or personally delivered to Owner in the case of a Notice to be given to Owner, or (ii) deposited in the United States mail, registered or certified, postage prepaid, and properly addressed as follows:

If to Owner:
Deirdre Lunetta, CPA
Babylon Union Free School District
50 Railroad Avenue
Babylon, New York 11702
dlunetta@babylonufsd.com

If to Contractor:
Steven Craig, President
Energy Systems Group LLC
9877 Eastgate Court
Newburgh, Indiana 47630

Either party may change its address or its designated representative for receipt of notices by submitting a notice in compliance with this Section.

If Owner has questions about billing, invoices or any other accounting or related administrative issues, it can make contact (which will not constitute Notice) with:

Geoff Wild, Chief Financial Officer
Energy Systems Group, LLC
9877 Eastgate Court
Newburgh, IN 47630
(812) 492-3771
jwilde@energysystemsgroup.com

12.3. Allocation of IRC 179D or Similar Income Tax Deduction Benefits. As a result of ESG's design and implementation of this Project, a federal income tax deduction under Section 179D of the Internal Revenue Code ("IRC 179D") may become available to ESG as the party primarily responsible for designing energy efficiency improvements implemented at Owner's Facilities. Congress provided in IRC 179D(d)(4) for government owners, which do not pay income tax and are thus ineligible to use this deduction, to allocate the deduction to the party primarily responsible for designing the energy efficiency improvements, here ESG. Owner hereby agrees to allocate to ESG such deduction and any similar deduction enacted by Congress to replace IRC 179D. Owner agrees to cooperate with ESG by executing annually during the construction of the Measures, and promptly returning to ESG, a written allocation and declaration required by IRC 179D. ESG will prepare and is responsible for the accuracy of any allocation documents and all accompanying documentation supplied for Owner's signature. Notwithstanding anything to the contrary herein, Owner makes no representation concerning the availability or applicability of any such tax deduction benefits or of their ability to be allocated to or claimed by ESG. ESG assumes all risk related to such allocation and deduction.

12.4 Claims for Damages. Any claims by either party hereto for bodily injury or damage to personal property caused by any act or omission of the other party hereto or by any of such party's employees or agents or others for whose acts it is legally liable shall be made in writing to such other party within a reasonable time after the occurrence or first knowledge of such injury or damage.

12.5 Assignment. Neither party shall assign, transfer, pledge, or grant any security interest in, or otherwise dispose of, this Agreement or the equipment or any interest in this Agreement or the equipment without first obtaining the other party's written consent. Subject to the foregoing,

this Agreement shall inure to the benefit of and is binding upon the heirs, executors, administrators, successors, and assigns of the parties hereto.

12.6. Waivers. The failure of either party hereto to insist upon strict performance of any of the provisions of this Agreement or to take advantage of any of its rights hereunder shall not be construed as a waiver of any such provision or the relinquishment of any such rights unless such waiver is in writing and signed by both parties.

12.7. Hazardous Materials. If during the performance of the services related to the Project, the presence of Hazardous Materials is discovered or reasonably suspected, Contractor shall notify Owner of such discovery or suspicion and shall be permitted to immediately cease all Work that may require contact with or exposure to such hazardous materials until Owner has inspected the same and Owner has made arrangements for the removal of the same at its expense. Contractor shall be entitled to an extension of the time fixed for the completion of the Work equivalent to the time required to remediate such Hazardous Material. "Hazardous Materials" includes all hazardous or toxic substances or materials as may be so designated by federal, state or local governmental entities, including, without limitation, asbestos, mold, lead paint and soil or water contamination of any kind, unless expressly included within the Scope of Work.

12.8. Concealed Conditions. If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature, that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner in no event later than 21 days after first observance of the conditions and, if appropriate, the Contract Price and/or Contract Time, shall be adjusted by Change Order signed by both parties.

12.9. Amendments. No amendment, supplement, or modification hereof shall be effective for any purpose unless the same is in writing and signed by both parties hereto.

12.10. Headings. The headings of sections and subsections of this Agreement are for convenience of reference only and shall not affect the meaning or construction of any provision hereof.

12.11. Entire Agreement. This Agreement, together with the Contract Documents, represents the entire agreement between the parties hereto with respect to the subject matter hereof and supersedes all prior negotiations, representations and agreements whether written or oral.

12.12. Non-Appropriation. This Contract shall be deemed executory only to the extent of the monies appropriated and available for the purpose of the Contract, and no liability on account therefor shall be incurred beyond the amount of such monies. It is understood that neither this Contract nor any representation by any public employee or officer creates any legal or moral obligation to request, appropriate or make available monies for the purpose of the Contract.

12.13 Commissioner Approval. This Contract shall not be executory until approval of the Commissioner of Education is obtained by the District pursuant to 8 NYCRR §155.20.

12.14 Review by Counsel. This Contract has been reviewed by counsel selected by the Owner, who has issued an opinion consistent with the form Opinion of Owner's Counsel, identified within Exhibit C, hereto.

[Remainder of page intentionally left blank; signature page to follow.]

12.15 Authority to Execute Contract. This Contract is executed by Owner pursuant to a resolution of Owner's Board of Education duly adopted at its regular meeting called and held on the day of May 13, 2024.

BABYLON UNION FREE SCHOOL DISTRICT

Signature _____
Linda Jurs

Title Board of Education President

ENERGY SYSTEMS GROUP, LLC

Signature _____
Steven C. Craig

Title President

SCHEDULE 1

FINAL ACCEPTANCE CERTIFICATE

Energy Systems Group, LLC
9877 Eastgate Court
Newburgh, IN 47630

Re: Energy Performance Contract, dated as of May, 31, 2024 20___ (the "Agreement"), between Energy Systems Group, LLC (the "Contractor") and Babylon Union Free School District (the "Owner").

Ladies and Gentleman:

In accordance with the Agreement, Owner hereby certifies and represents to, and agrees with, Energy Systems Group, LLC as follows:

The Work (as defined in the Agreement) has been delivered, installed, and accepted as of _____ (the "Final Acceptance Date").

Owner has conducted such inspection and/or testing of the Work, as it deems necessary and appropriate, and hereby acknowledges that it accepts all of the Work for all purposes.

No event or condition that constitutes, or with notice or lapse of time, or both, would constitute, a default or breach of contract exists at the date hereof.

Sincerely,

BABYLON UNION FREE SCHOOL DISTRICT

Signature: _____

Title: Board of Education President

Date: _____

SCHEDULE 2

PARTIAL ACCEPTANCE CERTIFICATE

Energy Systems Group, LLC
9877 Eastgate Court
Newburgh, IN 47630

Re: Energy Performance Contract, dated as of May 31, 2024, 20____ (the "Agreement"), between Energy Systems Group, LLC (the "Contractor") and Babylon Union Free School District (the "Owner").

Ladies and Gentleman:

In accordance with the Agreement, Owner hereby certifies and represents to, and agrees with, Energy Systems Group, LLC as follows:

The ECM (or ECMs), Facility (or Facilities), as the case may be, (as defined in the Agreement) have been delivered, installed, and accepted as of _____ (the "Acceptance Date").

Owner has conducted such inspection and/or testing of the ECM (or ECMs), Facility, as the case may be, as it deems necessary and appropriate and hereby acknowledges that it accepts the ECM (or ECMs), Facility, as the case may be, for all purposes.

No event or condition that constitutes, or with notice or lapse of time, or both, would constitute, a default or breach of contract exists at the date hereof.

Sincerely,

BABYLON UNION FREE SCHOOL DISTRICT

Signature: _____

Title: Board of Education President

Date: _____

EXHIBIT A

SCOPE OF WORK

A. GENERAL PROVISIONS

1. ESG will provide all design, labor, and materials to install the following work for complete and usable systems. Items that are not specifically listed in this Exhibit or the other Exhibits to the Contract are not included in the project. Work includes complete setup and startup in accordance with the manufacturer's recommendations and the version of any codes applicable at the time of contract execution. It does not include a third-party commissioning agent.
2. All labor is quoted as straight time, day shift, unless indicated otherwise. ESG and its subcontractors may choose to either work five 8-hour days or four 10- hour days per week.
3. Prevailing wage labor is included.
4. Sales tax is not included.
5. ESG will provide necessary submittal data and specification documents on all equipment to be installed to the Owner (or their representative) for prompt review and approval prior to equipment being ordered.
6. ESG will develop the required documentation and will obtain construction permits as dictated by local code.
7. Any existing equipment or material removed by ESG in order to perform the Work will become property of ESG once removed from the Owner's Facilities. ESG shall properly dispose of all such equipment or material. Any potential scrap or recovery value of the equipment or materials shall belong to ESG and has already been reflected in the Contract Price for the Work.
8. ESG will provide Operating and Maintenance Manuals (O&M Manuals) for work listed in this Exhibit. These manuals will document all equipment installed, provide manufacturer's operating and maintenance details, and define manufacturers' warranty provisions and instruction. ESG will provide the O&M Manuals in electronic format.
9. ESG is not responsible for bringing existing lighting/electrical systems up to code except where noted in the respective scopes of work.
10. Where demolition of certain areas of a building is required for removal and installation of equipment and that demolition is included in the scope of work defined herein, ESG will make every effort to replace such areas with similar materials as available. If such materials are not available, materials of similar quality will be supplied and installed.
11. ESG will only be responsible for repairing existing electrical wiring or piping problems that occur within two feet (24 inches) of the device being installed or the nearest wall or ceiling penetration, whichever is shorter. Piping includes, but is not limited to, domestic hot and cold water, cooling cold water, heating hot water, condensate, fuel oil, and cooling tower condensing water. Any issues discovered by ESG shall be brought to the Owner's attention as soon as practicable.
12. Underground: ESG is not responsible for unforeseen conditions associated with underground work. All reasonable efforts will be made to identify current conditions. ESG will be responsible for following the law as it relates to notifying the local Utility Protection Service per State law but is not responsible for damage to utilities that have not been properly identified, located or otherwise unforeseen.
13. Utility Meter: If new utility meters are required, provision and coordination of utility meters is the responsibility of the Owner. It is not anticipated that any new utility meters will be required in order to perform this project, with the exception of ECM #3 A, B and C (Solar Photovoltaic).

14. The following areas are specifically excluded from this scope of work. Correction of problems in these areas, if required by Federal, State or local law or ordinance, will be considered additional work and will be chargeable (with approval) to the Owner.
    a. Any work not specifically stated and outlined in this scope of work.
    b. Painting and patching of areas beyond those areas directly related to work.
    c. Existing non-code conditions (examples: existing electrical wiring that requires correction or approval by appropriate inspectors, existing penetrations in need of fire stopping, etc.).
    d. Removal and/or replacement of existing security fence.
15. ESG will provide information necessary to apply for utility incentives or other inducements and make an application on behalf of the Owner as applicable. ESG will include, in good faith, any reasonably known incentives or inducements in the project cash flow analysis but does not guarantee the Owner's receipt of these funds.
    a. Extended Warranties or Service Plans: ESG will transfer to the Customer manufacturer warranties and service plans to the extent they extend beyond the one-year ESG warranty. Following the one-year ESG warranty, the Owner will contact the manufacturer directly for warranty or service issues. ESG does not guarantee that the manufacturer or service provider will be available throughout the term of the manufacturer's warranty. Any manufacturer's warranties beyond one year are detailed in the individual scope write-ups.
    b. ESG will provide information necessary to apply for utility incentives or other inducements and make an application on behalf of the Owner as applicable. ESG will include, in good faith, any reasonably known incentives or
16. All existing light bulbs and ballasts removed in this project will be properly handled and sent to recycling.

B. FACILITIES

The following facilities will be referenced in the Scope of Work.

- Babylon Elementary School, 171 Ralph Avenue, Babylon, NY 11702
- Babylon Memorial Grade School, 169 Park Avenue, Babylon, NY 11702
- Babylon Junior-Senior High School, 50 Railroad Avenue, Babylon, NY 11702

C. ENERGY CONSERVATION MEASURES (ECM)

ECM ID	Energy Conservation Measure "ECM" Description	Babylon ES	Babylon Jr. & HS	Babylon Memorial Grade School
01	LED Lighting – Interior	✓	✓	✓
02	LED Lighting – Exterior	✓	✓	✓
03A	Solar PV - Babylon ES	✓		
03B	Solar PV - Grade School			✓
03C	Solar PV - Jr & HS		✓	
04	Roof Restoration at Grade School			✓
05	Building Envelope Upgrades	✓	✓	✓
06	Piping Insulation	✓	✓	✓
07	Steam Trap Upgrades - Retrofit		✓	
08	Boiler Replacements	✓	✓	
09	Walk-In Cooler/Freezer Controls	✓	✓	
10	Plug-load Controls	✓	✓	✓
11	Retro-commissioning	✓	✓	✓
12	Exhaust Fan Control for Air Quality	✓	✓	✓
13A	Building Controls - Upgrades	✓	✓	✓
13B	Building Controls - AHU Units with DCV	✓	✓	✓

D. ENERGY CONSERVATION MEASURES (ECM)

ECM #01: LED Lighting -- Interior

Buildings

- Babylon Elementary School
- Babylon Memorial Grade School
- Babylon Junior-Senior High School

A 1% replacement stock lamp will be left for maintenance purposes.

An overview of the current recommendations by option is broken out below but the Line by Line audit/scope details can be found in Appendix 1. The Line by Line detail shall supersede the summary tables and written description in the event of discrepancy between the two.

Babylon Elementary School

There were 475 interior lighting fixtures found in this building. Of these, 62.1% will be retrofit with the balance being replaced with new LED fixtures or left as is. Fixtures that were found to already be LED will be left as is. The scope is summarized in the table below and the detailed scope can be found in Appendix 1.

Proposed Description	Fixture Category	Qty	% of total	
Linear Retrofit Kit, (2) 4' Light Bars	Fixture Modernization	250	52.6%	
noretro	noretro	133	28.0%	
Linear Retrofit Kit, (3) 4' Light Bars	Fixture Modernization	29	6.1%	
LED 16W Circular Retrofit Kit	New Fixture	26	5.5%	
LED 65W High Bay - Integral Controls	New Fixture	12	2.5%	
LED 22W 10" Downlight Retrofit	New Fixture	9	1.9%	
LED 15W PAR38 Lamp	Fixture Modernization	6	1.3%	
Relamp, (1) LED 8W A19 Lamp	Fixture Modernization	5	1.1%	
Linear Retrofit Kit, (1) 4' Light Bar	Fixture Modernization	4	0.8%	
Linear Retrofit Kit, (4) 4' Light Bars	Fixture Modernization	1	0.2%	100%

Babylon Memorial Grade School

There were 682 interior lighting fixtures found in this building. Of these, 93.8% will be retrofitted with the balance being replaced with new LED fixtures or left as is. Fixtures that were found to be already LED will be left as is. The scope is summarized in the table below, and the detailed scope can be found in Appendix 1.

Proposed Description	Fixture Category	Qty	% of total	
Linear Retrofit Kit, (2) 4' Light Bars	Fixture Modernization	256	37.5%	
Linear Retrofit Kit, (1) 4' Light Bar	Fixture Modernization	222	32.6%	
Linear Retrofit Kit, (4) 4' Light Bars	Fixture Modernization	107	15.7%	
noretro	noretro	18	2.6%	
Relamp, (2) 25W 4' T5HO LED Lamp (Type-B)	Fixture Modernization	18	2.6%	
LED 65W High Bay - Integral Controls	New Fixture	12	1.8%	
Linear Retrofit Kit, (2) 2' Light Bars (High Output)	Fixture Modernization	10	1.5%	
Linear Retrofit Kit, (2) 2' Light Bars	Fixture Modernization	8	1.2%	
Relamp, (1) 25W 4' T5HO LED Lamp (Type-B)	Fixture Modernization	7	1.0%	
LED 22W 8" Downlight Retrofit Kit	New Fixture	6	0.9%	
Linear Retrofit Kit, (3) 4' Light Bars	Fixture Modernization	6	0.9%	
LED 16W Circular Retrofit Kit	New Fixture	4	0.6%	
Relamp, (1) LED 8W A19 Lamp	Fixture Modernization	4	0.6%	
LED 16W 8" Downlight Retrofit Kit - EM Backup	New Fixture	2	0.3%	
Linear Retrofit Kit, (2) 4' Light Bars + EM Backup	Fixture Modernization	2	0.3%	100%

Babylon Junior-Senior High School

There were 579 interior lighting fixtures found in this building. Of these, 90.3% will be retrofit with the balance being replaced with new LED fixtures or left as is. Fixtures that were found to already be LED will be left as is. The scope is summarized in the table below and the detailed scope can be found in Appendix 1.

Proposed Description	Fixture Category	Qty	% of total	
Linear Retrofit Kit, (3) 4' Light Bars	Fixture Modernization	205	35.4%	
Linear Retrofit Kit, (2) 4' Light Bars	Fixture Modernization	104	18.0%	
Relamp, (1) LED 8W A19 Lamp	Fixture Modernization	73	12.6%	
Linear Retrofit Kit, (1) 4' Light Bar	Fixture Modernization	55	9.5%	
Linear Retrofit Kit, (4) 4' Light Bars	Fixture Modernization	52	9.0%	
noretro	noretro	49	8.5%	
Relamp, (2) 25W 4' T5HO LED Lamp (Type-B)	Fixture Modernization	20	3.5%	
LED 22W 8" Downlight Retrofit Kit	New Fixture	5	0.9%	
Linear Retrofit Kit, (2) 2' Light Bars	Fixture Modernization	5	0.9%	
Relamp, (1) LED 5.5W A19 Lamp	Fixture Modernization	4	0.7%	
LED 16W 8" Downlight Retrofit Kit - EM Backup	New Fixture	2	0.3%	
Relamp, (1) 25W 4' T5HO LED Lamp (Type-B)	Fixture Modernization	2	0.3%	
Linear Retrofit Kit, (2) 2' Light Bars (High Output)	Fixture Modernization	2	0.3%	
Linear Retrofit Kit, (1) 2' Light Bar	Fixture Modernization	1	0.2%	100%

Exclusions and Clarifications

- The proposed lighting wattage values have been taken from 'New York Device Codes and Rated Lighting System Wattage Table' for the fixtures that are available.
- The existing and proposed usage hours were determined based on information from the facility personnel.
- The design incorporates appropriate levels of lighting, uniformity, distribution, and contrast.
- Repair of damaged lighting fixtures or other items attached to or within the ceiling system are not included.

ECM #02: LED Lighting -- Exterior

Buildings

- Babylon Elementary School
- Babylon Memorial Grade School
- Babylon Junior-High School

Existing

Exterior lighting is generally High-Intensity Discharge (HID), either high-pressure sodium or metal halide.

At least one (1) spare fixture of each type used will be provided for attic stock.

Exterior Lighting Recommendations

An overview of the current recommendations by option is broken out below but the Line by Line audit/scope details can be found in Appendix 1. The Line-by-Line detail shall supersede the summary tables and written description in the event of discrepancy between the two.

Babylon Elementary School

There were 22 exterior fixtures found in this building. Of these, 13.6% will be retrofit with the balance being replaced with new LED fixtures or left as is. Fixtures that were found to already be LED will be left as is. The scope is summarized in the table below and the detailed scope can be found in Appendix 1.

Proposed Description	Fixture Category	Qty	% of total	
LED 40W Wall Pack - Full Cutoff	New Fixture	10	45.5%	
noretro	noretro	9	40.9%	
LED 80W Flood Fixture - Cutoff Shield	Fixture Modernization	3	13.6%	100%

Babylon Memorial Grade School

There were 28 exterior fixtures found in this building. Of these, 0% will be retrofit with the balance being replaced with new LED fixtures or left as is. Fixtures that were found to already be LED will be left as is. The scope is summarized in the table below and the detailed scope can be found in Appendix 1.

Proposed Description	Fixture Category	Qty	% of total	
noretro	noretro	17	60.7%	
LED 40W Wall Pack - Full Cutoff	New Fixture	10	35.7%	
LED 40W Canopy Fixture	New Fixture	1	3.6%	100%

Babylon Junior-Senior High School

There were 25 exterior fixtures found in this building. Of these, 32.0% will be retrofit with the balance being replaced with new LED fixtures or left as is. Fixtures that were found to already be LED will be left as is. The scope is summarized in the table below and the detailed scope can be found in Appendix 1.

Proposed Description	Fixture Category	Qty	% of total	
noretro	noretro	12	48.0%	
LED 40W Wall Pack - Full Cutoff	New Fixture	5	20.0%	
LED 100W Flood Fixture - Cutoff Shield - Bi-Level Sensor	Fixture Modernization	4	16.0%	
LED 25W A21 Lamp	Fixture Modernization	3	12.0%	
LED 100W Flood Fixture - Bi-Level Sensor	Fixture Modernization	1	4.0%	100%

Exclusions and Clarifications

- The proposed lighting wattage values have been taken from 'New York Device Codes and Rated Lighting System Wattage Table' for the fixtures that are available.

ECM #03A, #03B and #03C: Solar Photovoltaic (PV) Systems

Buildings

- Babylon Elementary School
- Babylon Memorial Grade School
- Babylon Junior-Senior High School

Overview

This project shall consist of installing solar photovoltaic systems across the Babylon School District. All systems shall be roof-mounted (ballasted). A structural evaluation was performed on all affected roofs. The assessment report is included in Appendix 3 of the Comprehensive Energy Audit.

The systems will all be distributed generation, interconnected with the utility service, and net-metered onsite.

The total system size across the three schools is 1,062 kW DC. The approximate system sizes and anticipated first-year production are listed in the table below. Refer to the PV Syst Energy Production Reports (EPRs) included in Appendix 5 of the Comprehensive Energy Audit for more precise numbers and preliminary layouts.

School	System Size (kW DC)	Year 1 Production (kWh)
Babylon Elementary School	232	288,979
Babylon Memorial Grade School	264	317,820
Babylon Junior-High School	566	664,244
Totals	**1,062**	**1,271,043**

*The system sizes and production numbers shown in the table above may be different than those shown in the PVSyst Energy Production Reports (EPRs). The numbers shown in the table above are the basis of the guaranteed savings. The final kWdc system sizes may be different than shown above, however, the year 1 production will guide the design and construction of the system and forms the basis of ESG's contractual obligations.

Detailed Scope of Work

- PV Modules, Inverters, Rapid Shutdown Devices
- Step Down Transformers, Panelboards & Disconnects, Electrical BOS
- Racking, Ballast (As Required), Roof Attachments (As Required)
- Slipsheets (Materials to Match Existing Roof Materials)
- Also Energy DAS
- Equipment Rentals
- Trenching and Underground Directional Boring as Required for Assumed Locations

- Bollards for Step Down Transformers
- PV Array Design (Electrical & Structural)
- Stamped PE Drawings (Electrical & Structural)
- 2 Years Installation, Parts, & Labor for Proposed Solar Systems
- 1 Year of Commercial Guardian Package for Proposed Solar Systems
- Equipment Warranties
    - Modules: 12 Year Product & 30 Year Performance
    - Inverters: 10 Year Standard
    - Racking: 10 Year Standard

Exclusions and Clarifications

- Display Kiosks
- Site Restoration & Landscaping in Excess of Amounts Describe Above
- Internal Conduit Runs
- Roofing (Removal, Replacement, or Other)
- Roof Warranty Inspections
- Permanent Fall Protection
- Site Security
- Town Permit Fees
- Soil Testing & Geotechnical Reports
- Lighting
- Upgrades or Replacement of the Existing Electric Switchgear and Transformers

Assumptions

- $0.30 per Watt for Utility Upgrades Resulting from CESIR Study for each location
- Normal Working Hours, No Third Shift or Holiday/Overtime Required

- No Site Restrictions for the Movement of Material or Loading of Roofs
- Building Roofs are structurally suitable to handle each proposed solar system.

For purposes of this project, ESG used the Value of Distributed Energy Resources (VDER) rate for solar production. This includes a "front of the meter" approach to solar installation. ESG will coordinate closely with PSEG utility to install a solar system that will allow for "remote net metering," and the utility will credit Babylon UFSD for their solar use at a rate of $0.185/kWh. This rate was calculated through NYSERDAs Value Stack Calculator version 2.7. The projected rates are based upon the 2022 year total Location Based Marginal Pricing (LBMPs).

ECM #04: Roof Restoration

Buildings

- Babylon Memorial Grade School

Overview

Apply a restoration coating system to extend the life of the existing roof. This will be applied to the 75,705-square-foot existing membrane roof.

Detailed Scope of Work

- Spot removal and infill up to 595 SF of existing non-asbestos roofing in accordance with local and state law.
- Debris will be appropriately disposed of offsite.
- Clean and prepare the existing roof deck in accordance with the manufacturer's requirements and recommendations.
- Supply and install primer as recommended by the restoration system manufacturer to 75,705 SF of roof surface.
- Prepare 10,599 LF of existing seams per the restoration system manufacturer's direction.
- Supply and install 75,705 SF of silicone base construction coating per the restoration system manufacturer's recommendations.
- Supply and install 75,705 SF of silicone top construction coating per the restoration system manufacturer's recommendations.
- Supply and install 63 adjustable drain domes on existing roof drains.
- Transfer the restoration system manufacturer's 20-year warranty to the Owner.

Exclusions and Clarifications

- Asbestos or lead handling or abatement.
- Deck replacement.
- Wood blocking.
- Metal edge flashings
- Repair or unclogging of existing roof drain systems.

ECM #05: Building Envelope Upgrades

Buildings

- Babylon Elementary School
- Babylon Memorial Grade School
- Babylon Junior-Senior High School

Detailed Scope of Work

Identified damaged or missing exterior door weather stripping will be replaced or properly installed.

- Verify the size and dimensions of all exterior doors to have weather-stripping replaced.
- Remove all damaged weather stripping on exterior doors.
- Install new weather stripping and confirm/verify the proper operation of the doors.
- Seal accessible air gaps, re-caulk, and install new expanding foam insulation to mitigate leakage at roof-wall interfaces.
- Address other areas of envelope leakage as described in the detailed scope of work.

The tables below indicate the quantity and type of area to be sealed. For floor plans, see Appendix 4 of the Comprehensive Energy Audit. The amount is referred to in the Location column below.

BUILDING ENVELOPE WORK SUMMARY

Task	Babylon Elementary School	Babylon Memorial Grade School	Babylon High School	Total Quantity
Caulking (LF)			6,264	**6,264**
Door - Install Jamb Spacer (Units)	1			**1**
Door Weather Striping - Doubles (Units)	1	3	11	**15**
Door Weather Stripping - Singles (Units)		1	8	**9**
Roof-Wall Intersection Air Sealing (LF)	659	674	356	**1,689**
Wall Air Sealing (LF)	57			**57**
Wall Air Sealing (SF)	287			**287**

BUILDING ENVELOPE WORK DETAILS

Building/ Measure	Location	Units, LF or SF	Sum of Crack Size	Sum of Crack Length (LF)	Sum of Leakage Area (SF)
Babylon Elementary School					
Door Weather Stripping					
Double Door - Sides, Top, Sweep, Center (UT)	See Floor Plan	1	1/8 In.	33 LF	0.3 SF
Install Door Jamb Spacer (UT)	See Floor Plan	1		---	---
Roof-Wall Intersection Air Sealing					
Seal (LF)	See Floor Plan	437	1/12 In.	437 LF	3.0 SF
Seal Paint (LF)	See Floor Plan	222	1/8 In.	222 LF	2.3 SF
Wall Air Sealing					
Block, Seal (SF)	See Floor Plan	287	1/6 In.	287 LF	4.0 SF
Seal (LF)	See Floor Plan	57	1/12 In.	57 LF	0.4 SF
Total				**1,036 LF**	**10.1 SF**
Babylon Memorial Grade School					
Door Weather Stripping					
Double Door - Sides, Top, Sweep, Center (UT)	See Floor Plan	3	1/8 In.	99 LF	1.0 SF
Single Door - Sides, Top, Sweep (UT)	See Floor Plan	1	1/8 In.	20 LF	0.2 SF
Roof-Wall Intersection Air Sealing					
Block, Seal (LF)	See Floor Plan	674	1/8 In.	674 LF	7.0 SF
Total				**793 LF**	**8.3 SF**
Babylon Junior-Senior High School					
Caulking					
Interior Seal (LF)	See Floor Plan	6,264	1/96 In.	6,264 LF	5.4 SF
Door Weather Stripping					
Double Door - Sides, Top, Sweep, Center (UT)	See Floor Plan	4	1/8 In.	132 LF	1.4 SF
Double Door - Sweep, Center (UT)	See Floor Plan	7	1/8 In.	91 LF	0.9 SF
Single Door - Sides, Top, Sweep (UT)	See Floor Plan	5	1/8 In.	100 LF	1.0 SF
Single Door - Sweep (UT)	See Floor Plan	3	1/8 In.	9 LF	0.1 SF
Roof-Wall Intersection Air Sealing					
Block, Seal Paint (LF)	See Floor Plan	356	1/8 In.	356 LF	3.7 SF
Total				**6,952 LF**	**12.6 SF**

Exclusions and Clarifications

- Repair or replace damaged or inoperable doors, including peeling paint and rust, and seal the replacement of damaged or inoperable doors, including peeling paint and rust, and seal the replacement door lite.

- Repair or replacement of damaged or inoperable hardware, including, but not limited to, hinges, latches, locks, and closures.
- Repair or replacement of door thresholds.

ECM #06: Piping Insulation

Buildings

- Babylon Elementary School
- Babylon Memorial Grade School
- Babylon Junior-Senior High School

Detailed Scope of Work

The following table lists the number of items to be insulated by school:

Device	Babylon Elementary School	Babylon Memorial Grade School	Babylon Junior-Senior High School	Total Quantity
Bonnet Inuslation (Units)	2	3	23	**28**
Butterfly Valve Insulation (Units)		3	4	**7**
Check Valve Insulation (Units)	10	5	8	**23**
Control Valve Insulation (Units)	2		2	**4**
Flange Insulation (Units)	52	25	52	**129**
Flex Fitting Insulation (UT)	12	6	3	**21**
Gate Valve Insulation (Units)	15		4	**19**
Pipe Fitting Insulation (Units)	31	2	48	**81**
Pipe Reducer Insulation (Units)	6	6	9	**21**
Pump Insulation (Units)	2			**2**
Steam Trap Insulation (Units)			2	**2**
Straight Pipe Insulation (LF)	50		129	**179**
Strainer Insulation (Units)	2	3	9	**14**
Suction Diffuser Insulation (Units)	2	3	3	**8**
Tank Insulation (Units)			3	**3**

Detailed Scope of Work

1. Verify if any existing and damaged insulation contains asbestos or other hazardous materials.
2. Remove damaged insulation from pipes and valves. Insulation not adequately secured to pipes and valves (hanging loose, uncovered, exposed, wet, etc.) shall be considered damaged.
3. Provide and install the code-required insulation.
4. Details of the items to be insulated are indicated in the tables below.

Babylon Elementary School

	Pipe Dia (In.) or Tank Surface Area(SF)	Component	Insulation Thickness (In.)	Proposed Insulation Type	Total Quantity or Length	Total Equiv. Length (LF) or Total Area (SF)
Medium Temperature Hot Water	1.25	90 Degree Elbow	1.5	Cellular Glass	5	9
	1.25	Control Valve	1.5	Removable	2	8.2
	1.25	Gate Valve	1.5	Removable	1	5
	1.25	Straight Pipe	1.5	Cellular Glass	6	6
	2	90 Degree Elbow	2	Cellular Glass	12	21.6
	2	Check Valve	1.5	Removable	4	16.4
	2	Flex Fitting	1.5	Removable	4	6
	2	Gate Valve	1.5	Removable	4	20
	2	In-Line Pump	1.5	Removable	2	10
	2	Straight Pipe	2	Cellular Glass	12	12
	2	Strainer	1.5	Removable	2	10
	2	T Intersection	2	Cellular Glass	2	2.4
	2.5	90 Degree Elbow	2	Cellular Glass	5	9
	2.5	Check Valve	1.5	Removable	2	8.2
	2.5	Flange	1.5	Removable	14	25.2
	2.5	Gate Valve	1.5	Removable	3	15
	2.5	Pipe Reducer	1.5	Removable	2	2
	2.5	Straight Pipe	2	Cellular Glass	18	18
	3	Bonnet	1.5	Removable	1	1.8
	3	Check Valve	1.5	Removable	2	8.2
	3	Flange	1.5	Removable	16	28.8
	3	Flex Fitting	1.5	Removable	8	12
	3	Suction Diffuser	1.5	Removable	2	8.8
	4	90 Degree Elbow	2	Cellular Glass	2	3.6
	4	Check Valve	1.5	Removable	2	8.2
	4	Flange	1.5	Removable	16	28.8
	4	Gate Valve	1.5	Removable	4	20
	4	Pipe Reducer	1.5	Removable	4	4
	4	Straight Pipe	2	Cellular Glass	6	6
	6	90 Degree Elbow	2	Cellular Glass	2	3.6
	6	Flange	1.5	Removable	4	7.2
	6	Gate Valve	1.5	Removable	2	10
	6	Straight Pipe	2	Cellular Glass	5	5
	8	90 Degree Elbow	2	Cellular Glass	2	3.6
	8	Bonnet	1.5	Removable	1	1.8
	8	Flange	1.5	Removable	2	3.6
	8	Gate Valve	1.5	Removable	1	5
	8	Straight Pipe	2	Cellular Glass	3	3
	8	T Intersection	2	Cellular Glass	1	1.2

Babylon Memorial Grade School

Fluid Type	Pipe Dia (In.) or Tank Surface Area(SF)	Component	Insulation Thickness (In.)	Proposed Insulation Type	Total Quantity or Length	Total Equiv. Length (LF) or Total Area (SF)
MTHW	4	90 Degree Elbow	2	Cellular Glass	2	3.6
	4	Butterfly Valve	1.5	Removable	2	8.2
	4	Check Valve	1.5	Removable	2	8.2
	4	Flange	1.5	Removable	4	7.2
	5	Bonnet	1.5	Removable	3	5.4
	5	Check Valve	1.5	Removable	3	12.3
	5	Flange	1.5	Removable	21	37.8
	5	Flex Fitting	1.5	Removable	6	9
	5	Pipe Reducer	1.5	Removable	6	6
	5	Strainer	1.5	Removable	3	15
	5	Suction Diffuser	1.5	Removable	3	13.2
	6	Butterfly Valve	1.5	Removable	1	4.1

Babylon Junior-Senior High School

Fluid Type	Pipe Dia (In.) or Tank Surface Area(SF)	Component	Insulation Thickness (In.)	Proposed Insulation Type	Total Quantity or Length	Total Equiv. Length (LF) or Total Area (SF)
MTHW	2	90 Degree Elbow	2	Cellular Glass	2	3.6
	2	Bonnet	1.5	Removable	4	7.2
	2	Check Valve	1.5	Removable	2	8.2
	2	Flange	1.5	Removable	10	18
	2.5	Butterfly Valve	1.5	Removable	4	16.4
	3	90 Degree Elbow	2	Cellular Glass	1	1.8
	3	Bonnet	1.5	Removable	9	16.2
	3	Check Valve	1.5	Removable	1	4.1
	3	Control Valve	1.5	Removable	2	8.2
	3	Flange	1.5	Removable	7	12.6
	3	Strainer	1.5	Removable	4	20
	4	90 Degree Elbow	2	Cellular Glass	2	3.6
	4	Bonnet	1.5	Removable	6	10.8
	4	Check Valve	1.5	Removable	2	8.2
	4	Flange	1.5	Removable	10	18
	6	Bonnet	1.5	Removable	3	5.4
	6	Check Valve	1.5	Removable	3	12.3
	6	Flange	1.5	Removable	21	37.8
	6	Flex Fitting	1.5	Removable	3	4.5
	6	Pipe Reducer	1.5	Removable	9	9
	6	Strainer	1.5	Removable	3	15
	6	Suction Diffuser	1.5	Removable	3	13.2
	8	90 Degree Elbow	2	Cellular Glass	1	1.8
	8	Flange	1.5	Removable	2	3.6
	24	Flange	1.5	Removable	1	1.8
LPS	8	Bonnet	1.5	Removable	1	1.8
	12	Flange	1.5	Removable	1	1.8
Condensate	1	90 Degree Elbow	1.5	Cellular Glass	4	7.2
	1	Steam Trap	1.5	Removable	1	4.4
	1	Straight Pipe	1.5	Cellular Glass	18	18
	1	Strainer	1.5	Removable	1	5
	1.25	90 Degree Elbow	1.5	Cellular Glass	12	21.6
	1.25	Gate Valve	1.5	Removable	2	10
	1.25	Steam Trap	1.5	Removable	1	4.4
	1.25	Straight Pipe	1.5	Cellular Glass	34	34
	1.25	Strainer	1.5	Removable	1	5
	1.25	T Intersection	1.5	Cellular Glass	1	1.2
	1.5	90 Degree Elbow	2	Cellular Glass	11	19.8
	1.5	Gate Valve	1.5	Removable	1	5
	1.5	Straight Pipe	2	Cellular Glass	45	45
	1.5	T Intersection	2	Cellular Glass	1	1.2
	2.5	90 Degree Elbow	2	Cellular Glass	5	9
	2.5	Gate Valve	1.5	Removable	1	5
	2.5	Straight Pipe	2	Cellular Glass	23	23
	3	90 Degree Elbow	2	Cellular Glass	3	5.4
	3	Straight Pipe	2	Cellular Glass	9	9
	3	T Intersection	2	Cellular Glass	5	6
	14.25	Condensate Tank	2	Cellular Glass	1	14.25
	31.25	Condensate Tank	2	Cellular Glass	1	31.25
	125.6	Condensate Tank	2	Cellular Glass	1	125.6

Exclusions and Clarifications

- Removing, abating, or handling of any asbestos-containing materials.

- Insulating of equipment not explicitly listed in this scope of work. There may be piping or other equipment that is excluded due to an extended payback either due to the cost to insulate, the relatively low energy savings, or both.

ECM #07: Steam Trap Upgrades

Buildings

- Babylon Junior-Senior High School

Detailed Scope of Work

- Replace or rebuild in place 102 traps to restore proper operation of the unit, including:
  - Replace 20 float & thermostatic (F&T) traps with new traps manufactured by Barnes and Jones. Re-use existing strainers, isolation valves, piping, and fittings where possible.
  - Rebuild seven (7) float and thermostatic (F&T) traps with rebuild kits manufactured by Barnes and Jones.
  - Rebuild 75 thermostatic traps with cage units manufactured by Barnes and Jones. Existing covers will be re-used where possible and replaced where necessary. If a rebuild is not possible, the trap will be replaced.

Exclusions and Clarifications

- Asbestos testing and abatement.
- Replacing isolation valves, strainer filters, or other ancillary equipment that is operationally functional.
- Insulating ancillary equipment that is not explicitly included in ECM #05.

ECM #08: Boiler Replacements

Buildings

- Babylon Elementary School
- Babylon Junior-Senior High School

Overview

- Babylon Elementary School: Remove one of the two (1 of 2) existing hot water boilers and replace it with two (2) high-efficiency condensing boilers.
- Babylon Junior-Senior High School: remove one of the three (1 of 3) existing hot water boilers and replace it with two (2) high-efficiency condensing boilers. The existing steam boilers supply steam to hot water heat exchanger. This supplies hot water to about two-thirds of the school. Two new high-efficiency condensing boilers will be installed to replace one of the steam boilers and be connected directly to the hot water side of the heat exchanger.

The basis of design are those shown in the New Boiler table below. Manufacturer product data sheets are provided in Appendix 6.

An overview of existing and proposed boilers is provided in the following tables.

Existing Boilers

Manufacturer (Boiler/Burner)	Model Number (Boiler/Burner)	Boiler Size (MBH)	Steam / Hot Water	Fuel Type	Location Name
Weil McLain/Gordon Piatt	FST 200 HW/WR12.1-GO-50	4,548 output	Hot Water	Natural Gas/#2 Fuel Oil	Boiler Room
Weil McLain/Gordon Piatt	FST 200 HW/WR12.1-GO-50	4,548 output	Hot Water	Natural Gas/#2 Fuel Oil	Boiler Room
Eastman/ Webster	FST 200/ JB3C-75-LMV51-S-M.25VGD-MP-UL-FM-KEYSPAN	5,198 output	Hot Water	Natural Gas/#2 Fuel Oil	Boiler Room
Eastman/ Webster	FST 200/ JB3C-75-LMV51-S-M.25VGD-MP-UL-FM-KEYSPAN	5,198 output	Hot Water	Natural Gas/#2 Fuel Oil	Boiler Room
Eastman/ Webster	FST 200/ JB3C-75-LMV51-S-M.25VGD-MP-UL-FM-KEYSPAN	5,198 output	Hot Water	Natural Gas/#2 Fuel Oil	Boiler Room

New Boilers

Building Name	Tag	Manufacturer	Model Number	Size (MBH)	Steam / Hot Water	Fuel Type	Location Name
Babylon Elementary School	B-2A	Bryan	BFIT-2500	2,500 output	Hot Water	Dual Fuel	Boiler Room
Babylon Elementary School	B-2B	Bryan	BFIT-2500	2,500 output	Hot Water	Dual Fuel	Boiler Room
Babylon Junior-Senior High School	B-3A	Bryan	BFIT-2500	2,500 output	Hot Water	Dual Fuel	Boiler Room
Babylon Junior-Senior High School	B-3B	Bryan	BFIT-2500	2,500 output	Hot Water	Dual Fuel	Boiler Room

Detailed Scope of Work – Babylon Elementary School

- Provide engineering stamped drawings for the complete installation.
- Disconnect electrical components back to the nearest junction box or conduit fit for reuse per the National Electric Code as required to facilitate installation of a new boiler.
- Isolate and drain the boiler of water. Utilize isolation valves as close to the boiler as possible for all fuel lines.
- Demo and remove existing boilers.
- Install new condensing boilers.
- Furnish and install new piping to new boiler tie-in points for heating hot water as applicable.
- Furnish and install new isolation valves, temperature gauges, and pressure gauges as required.
- Tie into natural gas and fuel oil, as applicable. Furnish and install new isolation valves, pressure controls, fuel oil pumps, and safeties as required by code or manufacturer.
- Provide electrical connections to new boilers.
- Insulate all new or disturbed heating hot water piping and appurtenances to match existing. Meet or exceed requirements for insulation thickness.
- Controls integration required for a functioning system. See exclusion #1 below.
- Install boilers with a primary/secondary heating hot water loop arrangement.
    - Primary pumps are provided with the boilers.
    - The existing circulating pumps will serve as the secondary pumps. New secondary pumps are not included in this proposal.
- Provide equipment startup, commissioning, and final report.

Exclusions, Clarifications, and Assumptions

- Exclusion: Asbestos was not identified as a concern for this project, and it is assumed that abatement is not needed. Our scope of work excludes potential abatement costs, but we cannot guarantee that these services will not be required.
- Exclusion: Concrete pads for equipment appear to be in good shape and it is assumed that they will be able to be re-used for the new equipment. Any repairs needed due to cracking or otherwise poor condition are not included. If pads need to be extended to accommodate the equipment, SMI will cover these costs.
- Exclusion: No VFDs or VFD retrofits have been provided with the primary nor secondary pumps. It is assumed these are not requested.

Detailed Scope of Work – Babylon Junior-Senior High

- Provide engineering stamped drawings for the complete installation.
- Disconnect electrical components back to the nearest junction box or conduit fit for reuse per the National Electric Code as required to facilitate installation of a new boiler.
- Isolate and drain the boiler of water. Utilize isolation valves as close to the boiler as possible for all fuel lines.
- Demo and remove existing boilers.
- Install new condensing boilers.
- Furnish and install new piping to new boiler tie-in points for heating hot water as applicable.
- Furnish and install new isolation valves, temperature gauges, and pressure gauges as required.
- Tie into natural gas and fuel oil, as applicable. Furnish and install new isolation valves, pressure controls, fuel oil pumps, and safeties as required by code or manufacturer.
- Provide electrical connections to new boilers.
- Insulate all new or disturbed heating hot water piping and appurtenances to match existing. Meet or exceed requirements for insulation thickness.
- Controls integration required for a functioning system. See exclusion #1 below.
- Install boilers with a primary/secondary heating hot water loop arrangement.
    - Primary pumps are provided with the boilers.
    - The existing circulating pumps will serve as the secondary pumps. New secondary pumps are not included in this proposal.
- Provide equipment startup, commissioning, and final report.

Exclusions, Clarifications, and Assumptions

- Exclusion: Asbestos was not identified as a concern for this opportunity and it is assumed that abatement is not needed. This scope of work does not include any potential abatement costs, but we cannot guarantee that these services will not be required.
- Exclusion: Concrete pads for equipment appear to be in good shape and it is assumed that they will be able to be re-used for the new equipment. Any repairs needed due to cracking or otherwise poor condition are not included. If pads need to be extended to accommodate the equipment, SMI will cover these costs.
- Exclusion: No VFDs or VFD retrofits have been provided with the primary nor secondary pumps. It is assumed these are not requested.

ECM #09: Walk-in Cooler/Freezer Controls

Buildings

- Babylon Elementary School
- Babylon Junior-Senior High School

Overview

Install smart evaporator fan controls on select walk-in coolers and walk-in freezers as indicated. These controls are designed to maintain the desired temperatures while minimizing energy consumption. Typical product data is provided in Appendix 6.

Detailed Scope of Work

- Supply and install eTemp or NRM brand controllers (or equivalent) for each walk-in box refrigerator and freezer indicated.
- Program controllers accordingly.
- Verify existing evaporator fan motors; replace non-EC motors with GreenWize 1/15 HP Orange Motors (or equivalent).
- Install GreenWize ECM Fan Motor Control Model FCX for managing fan speeds; program for 50% speed when cooling isn't required.
- Set walk-in units to maintain consistent temperatures: 38°F for refrigerators and 0°F for freezers.
- Disconnect electrical components per National Electric Code for new evaporator fan motor and controller installation.
- Reuse existing electrical power wiring where suitable; replace unsuitable wiring as indicated in engineering drawings.
- Install necessary electrical wiring for the operational readiness of the systems.
- Provide and install manufacturer accessories essential for optimal system operation.
- Perform factory start-up, comprehensive testing, and adjustments to ensure system functionality.
- Instruct designated personnel on the operation and maintenance of the newly installed equipment.
- The quantities of coolers and freezers include:
    - Babylon Elementary School: 1 cooler, one freezer
    - Babylon Junior-Senior High School: 1 cooler, one freezer

Exclusions and Clarifications

- Repair or replacement of defective equipment, except the equipment described above.
- Repair or upgrades required to bring electrical and mechanical systems up to code, other than those specifically included in this scope of work.
- Upgrade of distribution panel unless otherwise specified in the scope of work or mechanical/electrical drawings.

ECM #10: Plug Load Controls

Buildings

- Babylon Elementary School
- Babylon Memorial Grade School
- Babylon Junior-Senior High School

Overview

Electric end-use items such as window AC units, copiers, Vending Machines, TV's, digital projectors / Smart Boards, etc. are plugged into outlets or breakers and left in "ON" mode most of the time regardless of use. Even when the equipment is in "OFF" mode or in "SLEEP" mode, there is a residual energy drain that is a waste of energy and cost.

Detailed Scope of Work

ESG will install 258 Wi-Fi programmable timers across the Babylon School District.

Assumptions:

(1) The plug load is assumed to be on for 168 hours per week.

(2) The plug load is assumed off for 12 hours per day during the work week.

(3) The plug load is assumed off for 24 hours per day during the weekend.

(4) Wi-Fi availability and compatible access provided and maintained by Owner.

ECM #11: Building Retro-commissioning

Buildings

- Babylon Elementary School
- Babylon Memorial Grade School
- Babylon Junior-Senior High School

Overview

ESG will review the existing Building Management Systems (BMSs) to identify components that have failed or need adjustment or calibration. As part of this ESG will review existing sequences of operation, schedules, and set points and adjust any deviations found from the preferred way to control the building. ESG will generate a list of issues that should be addressed for the Owner's consideration and at Owner's expense.

Detailed Scope of Work

- Provide fully-trained HVAC/BMS technicians to test, commission and adjust/correct set points and schedules on the existing HVAC equipment and control systems.
- Technician/engineering time will be provided to accomplish the following:
  - Verify the location of each thermostat.
  - Calibrate existing thermostats and temperature sensors.
  - Verify the proper location of existing outdoor air sensors and calibrate them.
  - Check and adjust BMS controller parameters, including PID loops, and dead bands
  - Verify the operation of heating coil control valves.
  - Inspect, adjust, and lubricate outside, return, and exhaust dampers.
  - Adjust the occupied and unoccupied settings to contractual settings provided by the District
  - Adjust occupancy schedules to contractual settings/times provided by the District
  - Adjust holiday calendars to include all day's schools are closed for the upcoming school year.
  - Record deficiencies found and provide report to Owner with recommendations.

Exclusions and clarifications

- Replacing components identified not to be functioning properly, repair arts or re-programming

ECM #12: Exhaust Fan Control for Air Quality

Buildings

- Babylon Elementary School
- Babylon Memorial Grade School
- Babylon Junior-Senior High School

Overview

ESG will integrate building exhaust fans into the Building Management System (BMS) such that they can be scheduled on during occupied times and off during unoccupied times. This integration will also allow for alarming via the BMS when the equipment does not appear to be functioning.

Detailed Scope of Work

- Provide DDC control and integration into existing Building Management System (BMS) for indicated exhaust fans.
- Add I/O capacity as necessary to incorporate additional points.
- Provide start/stop, status, and alarm via the BMS.
- Provide occupancy programming/control via the BMS.
- The number of exhaust fans to be controlled include:
  - Babylon Elementary School: 22
  - Babylon Memorial Grade School: 33
  - Babylon Junior-Senior High School: 56

Exclusions and Clarifications

- Repair or replacement of fans not functioning properly.

ECM #13A & #13B: Building Controls Upgrades

Buildings

- Babylon Elementary School
- Babylon Memorial Grade School
- Babylon Junior-Senior High School

Detailed Scope of Work

Supervisory Controllers

- Provide, install, wire and program new JCI Facility Explorer FX-80 Niagara-based web enabled supervisory controller for buildings listed above. The new FX-80 controllers will replace the existing obsolete FX-60 controllers. Existing BMS points, schedules, trends and graphics shall be incorporated into the new supervisory network. The new controllers will be sized to allow for limited future expansion.
- The current Java-based supervisory databases will be upgraded to the latest HTML5 version, and Java-based graphics will be replaced with new HTML5 graphics.
- Upgrade and incorporate the functionality of existing BMS front-end systems and additional sequences as described herein into one non-proprietary JCI FX system.
- Provide alarming and trending of critical system points.
- Integrate network supervisory controllers into a single, cohesive, district-wide temperature control network running on a remote server at an Owner-specified location.

Boiler Room Central BMS Control Panels

- Provide and install new boiler room control panels and field devices as required to control the following boiler room equipment at each school:
  - Heating Pumps: Start-Stop/Status/Fault/Alarm
  - Boilers: Start-Stop/Status/Fault/Alarm
  - Heat Exchangers: OA Rest Control with Unoccupied Setback
  - Pneumatic Zones: Individual Day/Night Control for each existing zone
  - Steam Zone Valves: Open/close based on zone occupancy and unoccupied demand
- Boiler room work shall include scheduling, trending, and alarms
- Provide, install, and wire a new temperature sensor of the buildings' zones to allow for monitoring, trending, optimal start, and unoccupied setbacks.
- Provide and install an override timer for each zone as well as an indication of occupied/unoccupied status, boiler command, and pump lead/lag control
- Replace existing pneumatic and obsolete electronic controls with a new central plant controller.

ECM #13B - Add Demand Controlled Ventilation for Existing AHUs

- Supply and install components as necessary to facilitate Demand Controlled Ventilation (DCV).
  - (1) new space-mounted CO_2 transmitters (with redundant backup) to monitor CO_2 levels to provide an indication of occupancy in the area specified for use in demand-controlled ventilation.
  - Wire CO_2 transmitters to the existing DDC panel for the air handling units
  - Replace the existing controllers with new JCI PCG/CGM controllers with sufficient I/O capacity for the additional points. Other devices will remain.

- Provide programming as required to rest the minimum outside air damper position based on the CO_2 levels in the space.
- DCV will be implemented on the following number of Air Handling Units:
  - Babylon Elementary School: 3 (Gym/Stage, Library, and Cafeteria)
  - Babylon Memorial Grade School: 2 (Gymnasium)
  - Babylon Junior-Senior High School: 3 (AHUs in Gymnasiums)

Exclusions and clarifications

- The Owner's IT Department will provide addresses and permissions for integration to the Owner's existing LAN and remote connectivity via VPN (or external IP addresses) and the Owner will provide and maintain a VPN for use by ESG and its subcontractor(s) with access to all sites during the project and throughout the warranty period.
- The Owner will provide and maintain a VPN for Contractor's use with access to all sites during the project and throughout the warranty period.

EXHIBIT B

ENERGY SAVINGS GUARANTEE AND MEASUREMENT AND VERIFICATION PLAN

1. Definitions

Terms defined within the parties' Contract shall have the same or similar meaning when used herein; provided, however, that a conflict between the terms of the Contract shall be resolved with respect to Measurement and Verification Plan by giving precedence to terms defined within this section.

"Adjusted Base Year Energy Costs" means the Baseline Period energy consumption plus/minus any applicable adjustments or weather normalization, multiplied by the applicable Utility Rate.

"Adjusted Baseline Energy" means the Baseline Period energy consumption modified as part of Routine and Non-Routine Adjustment to account for changes in a Performance Year.

"Annual Project Benefits" or **"Annual Project Savings"** means the amount of energy, operational, capital, and other savings or benefits achieved during a given Performance Year.

"Annual Reconciliation Report" means the detailed reporting of **Total Project Benefits** associated

with the corresponding Performance Year.

"Baseline" means the time period, energy use, or conditions of the affected facility or systems that are mutually agreed upon.

"Baseline Period" means the identified time period chosen to represent the operation of the facility or system before implementation of the project.

"Baseline Period Energy" means the Energy Consumption and Demand occurring during the Baseline Period.

"Baseline Unit Energy Costs" means the cost per unit determined for each applicable utility during the Baseline Period.

"Construction Period" means the period of time commencing upon execution of the Contract and concluding with the start of First Performance Year.

"Construction Period Benefits" means the benefit accrued between the execution of the Contract and the start of First Performance Year.

"Current Year Energy Cost" means the Performance Year energy consumption, plus/minus any applicable Adjustments, multiplied by the applicable Utility Rate.

"Capital Expenditures Avoided" means the moneys anticipated to be expended by a public entity to pay for an Improvement Measure identified as a permanent equipment replacement.

"Escalation Rate" means the annual rate increase used to calculate the benefit for a particular Performance Year.

"First Performance Year" is defined as the 12-month period beginning on the first day of the month immediately following the Final Acceptance Date.

"Guarantee Term" is defined as the period starting on the first day of the month immediately following the Final Acceptance Date through the last Performance Year shown in Section 2.2.

"Improvement Measure" or "Energy Conservation Measure" means an action or set of actions designed to create benefit or improve efficiency, conserve energy, water, or manage demand.

"Initial Benefits" is defined as the non-escalated benefits initially calculated using baseline information.

"Material Change" is defined as any condition other than weather that affects building energy use by more than 0.5% by meter or submeter.

"Measurement and Verification Plan (M&V Plan)" is the document that defines the procedures and methodologies for quantifying the benefit of the Improvement Measures within the Project and how ESG will communicate and verify the Total Project Benefits.

"Measured Project Benefits" means the amount of energy, operational, capital, and other benefits achieved in accordance with the methodologies set forth in the M&V Plan.

"Non-Measured Project Benefits" means benefits agreed upon by the Owner that may include, but are not limited to energy, Capital Expenditures, and Operational and Maintenance Costs as a result of the Improvement Measures and will not be measured.

"Non-Routine Adjustment" means calculations to account for the energy effects due to changes in the Static Factors.

"Operational and Maintenance Cost" shall include the costs associated with operating and maintaining the facilities.

"Performance Period" is defined as the time period beginning with the Construction Period and includes each subsequent Performance Year.

"Performance Year" is defined as each of the successive twelve (12) month periods following the anniversary of the First Performance Year.

"Routine Adjustment" means an adjustment to the baseline or reporting period data using mathematical and statistical methods to account for expected changes in the energy consumption or demand due to changes in the variables affecting energy consumption.

"Static Factors" means any characteristics that are not expected to change, which may affect an Improvement Measure's performance.

"Total Project Benefits" means the total of Measured Project Benefits and Non-Measured Project Benefits accumulated within the Performance Period as a result of the Project.

"Utility" is the Owner's electric, natural gas, water, or other applicable service providers.

"Utility Cost Avoidance" is the energy or utility savings attributed to the reduction in the Owner's cost of electric, natural gas, water, or other applicable service providers.

"Utility Rate" means the price per unit identified for consumption or demand of a utility.

2. Guaranteed Project Benefits

2.1. Total Project Benefits. Except as stated otherwise in the Contract, ESG guarantees to the Owner that subject to the terms and conditions of this Exhibit B, ESG's Project will result in Total Annual Project Savings or Benefits during the course of the Performance Period that equal or exceed the Total Project Benefits identified in section 2.2.

2.2. Summary of Total Project Benefits

Performance Period	Measured	Non-Measured		Project Benefits ($)	Net Benefits ($)
	Utility Cost Avoidance ($)	Utility Cost Avoidance ($)	Operations & Maintenance Cost Avoidance ($)		
Year 1	$466,528	$15,982	$47,097	$529,607	$78,968
Year 2	$388,435	$16,301	$47,097	$451,833	$1,194
Year 3	$394,969	$16,627	$47,097	$458,693	$8,054
Year 4	$401,616	$16,960	$47,097	$465,673	$15,033
Year 5	$408,376	$17,299	$47,097	$472,772	$22,133
Year 6	$415,253	$17,645	$32,097	$464,995	$14,356
Year 7	$422,248	$17,998	$32,097	$472,343	$21,704
Year 8	$429,363	$18,358	$32,097	$479,818	$29,179
Year 9	$436,601	$18,725	$32,097	$487,423	$36,784
Year 10	$443,963	$19,099	$32,097	$495,160	$44,520
Year 11	$451,452	$19,481	$22,097	$493,030	$42,391
Year 12	$459,070	$19,871	$22,097	$501,038	$50,399
Year 13	$466,818	$20,268	$22,097	$509,184	$58,545
Year 14	$474,701	$20,674	$22,097	$517,472	$66,833
Year 15	$482,719	$21,087	$22,097	$525,904	$75,264
Year 16	$490,876	$21,509	$22,097	$534,482	$534,482
Year 17	$499,173	$21,939	$22,097	$543,209	$543,209
Year 18	$507,613	$22,378	$22,097	$552,088	$552,088
Total	**$8,039,773**	**$342,202**	**$572,751**	**$8,954,726**	**$2,195,137**

Note: The Guaranteed Savings is for total dollars saved; the performance guarantee does not apply by M&V option, fuel type, IM/ECM or Facility. Construction period savings is included into year 1 and is valued at 50% of the calculated Construction Period Benefit.

2.3. Initial Benefits

Performance Period	Measured	Non-Measured			Project Benefits ($)
	Utility Cost Avoidance ($)	Utility Cost Avoidance ($)	Operations & Maintenance Cost Avoidance ($)	Capital Expenditures Avoided ($)	
Initial	$374,520	$15,668	$47,097	$0	$437,285

2.4. Construction Period Benefit

Construction Period Benefits are estimated based on anticipated Substantial Completion dates for each Improvement Measure. The estimated accrual of Construction Period Benefits is provided in the following figure.

IM	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11
01	$159	$318	$636	$3,178	$3,178	$3,178	$3,178	$3,178
02	$0	$22	$32	$43	$43	$43	$43	$43
03A	$0	$0	$0	$0	$0	$0	$1,506	$3,012
03B	$0	$0	$0	$0	$0	$0	$0	$1,656
03C	$0	$0	$0	$0	$0	$0	$0	$0
04	$0	$0	$0	$21	$21	$21	$21	$21
05	$0	$0	$0	$41	$81	$203	$305	$407
06	$0	$0	$0	$0	$0	$69	$139	$278
07	$0	$0	$0	$0	$0	$0	$66	$197
08	$0	$0	$0	$0	$0	$278	$555	$1,110
09	$0	$0	$0	$0	$0	$0	$0	$11
10	$0	$0	$0	$0	$74	$148	$222	$296
11	$0	$0	$0	$0	$0	$0	$121	$242
12	$0	$0	$0	$0	$0	$105	$209	$314
13	$0	$0	$0	$0	$0	$0	$60	$96
14	$0	$0	$0	$0	$0	$0	$0	$251
Total	**$159**	**$339**	**$668**	**$3,283**	**$3,398**	**$4,046**	**$6,426**	**$11,114**

[1] Construction Period Benefits

IM	Month 12	Month 13	Month 14	Month 15	Month 16	Month 17	Month 18	CPB[1]
01	$3,178	$3,178	$3,178	$3,178	$3,178	$3,178	$3,178	$39,247
02	$43	$43	$43	$43	$43	$43	$43	$572
03A	$3,012	$3,012	$3,012	$3,012	$3,012	$3,012	$3,012	$25,600
03B	$3,312	$3,312	$3,312	$3,312	$3,312	$3,312	$3,312	$24,843
03C	$3,461	$6,923	$6,923	$6,923	$6,923	$6,923	$6,923	$44,999
04	$21	$21	$21	$21	$21	$21	$21	$255
05	$407	$407	$407	$407	$407	$407	$407	$3,884
06	$278	$278	$278	$278	$278	$278	$278	$2,431
07	$263	$263	$263	$0	$0	$0	$0	$1,052
08	$1,110	$1,110	$1,110	$0	$0	$0	$0	$5,274
09	$23	$34	$46	$57	$57	$57	$57	$343
10	$296	$296	$296	$296	$296	$296	$296	$2,816
11	$363	$484	$484	$484	$484	$484	$484	$3,632

12	$419	$524	$628	$733	$838	$1,047	$1,047	$5,864
13	$144	$192	$241	$241	$241	$241	$241	$1,696
14	$502	$753	$1,004	$1,004	$1,004	$1,004	$1,004	$6,528
Total	**$16,834**	**$20,832**	**$21,247**	**$19,990**	**$20,094**	**$20,304**	**$20,304**	**$169,036**
[1] Construction Period Benefits								

2.5. Annual Savings Reconciliation

Project Benefits Surplus – If a surplus occurs for any one year of the Performance Period, ESG shall apply the amount of such surplus to any subsequent Performance Period.

Project Benefits Shortfall – If a shortfall occurs for any one year of the Performance Period, subject to Owner's mutual agreement, ESG shall:

Deduct such shortfall from any unpaid balance the Owner owes to ESG, or

Where permitted by applicable law, increase the next year's guaranteed amount of benefit by the amount of such shortfall, or

Pay Owner the amount of such shortfall, or

Provide to Owner additional products or services, or implement additional improvement measures equal to the value of such shortfall, at no additional cost to Owner. These improvements may generate additional Project Benefits that may be applied to future years of the Performance Period.

3. Baseline

3.1. Baseline Utility Information

Additional detailed Information is contained in Attachment B1 - 3.1 Baseline Utility Information Details.

Annual Baseline Usage Summary

Facility	Electrical Consumption (kWh)	Electrical Demand (kW)	Natural Gas (therms)	Fuel Oil (gal)
Babylon Elementary	365,920	1,713	45,187	-
Babylon Memorial Grade School	385,320	1,340	38,002	-
Babylon Jr. & High School	1,022,880	4,899	99,209	-
Total	**1,774,120**	**7,952**	**182,398**	**-**
Notes: 1. Electric, Natural Gas, and Fuel Oil usage is based on July 2022 – June 2023 utility information.				

3.2. Baseline Energy, Water, and O&M Rates

Additional detailed Information is contained in Attachment B1 - 3.1 Baseline Utility Information Details.

FACILITY NAME	Electric $/kw	Electric $/kWh	Electric Solar $/kWh	Natural Gas $/therm
Babylon Elementary	$12.5	$0.157	$0.1876	$0.96
Babylon Memorial Grade School	$16.8	$0.152	$0.1876	$1.34
Babylon Jr. & High School	$11.1	$0.159	$0.1876	$1.18
Notes: Effective Utility Rate basis is described in Attachment B1 – 3.1 Utility Baseline Information Details.				

3.3. General Assumptions

Additional General Assumptions maybe listed in Attachment B2 - 3.4 Existing Conditions and Proposed Conditions.

3.4. Existing Conditions and Proposed conditions

See Attachment B2 - 3.4 Existing Conditions and Proposed Conditions.

- *These Proposed Operating Conditions are agreed upon between the Owner and ESG. In the event the Owner operates outside of the agreed operating conditions stated, ESG shall be notified in accordance with this Agreement and reserves the right to make adjustments to the guarantee per this Agreement.*

3.5. Baseline and Benefit Adjustments

The operating conditions that affect energy consumption or other benefits will differ between the baseline and the Performance Period. It is necessary to make adjustments to account for these changes in operating conditions in order to provide the most accurate comparison. There are two types of adjustments, Non-

Routine and Routine as defined above. The benefit and adjustments will be calculated using the methodologies identified in the Measurement and Verification Plan.
Annual Benefit = Baseline usage +/- Non-Routine Adjustment +/- Routine Adjustments – Performance Year usage

3.6. Performance Period Rate Escalation Factors

Annual rate escalation begins with the 12-month period following the Baseline Period per commodity and continues for each subsequent year for the duration of the Performance Period.

Commodity	Annual Escalation Rate
Electric	2.0%
Solar Photo Voltaic Electric	2.0%
Natural Gas	2.0%
Propane/Fuel Oil/etc.	2.0%
Operations and Maintenance (O&M)	0.0%

4. Project Benefits Methodology Summary

Additional detailed information is contained in Attachment B3 – 4.0 Project Benefits Methodology Details.

Improvement Measure #	Improvement Measures	Annual Project Benefits ($)[1]	Option A ($)[1]	Non-Measured ($)[1]
01	LED Lighting – Interior	$65,954	$57,202	$8,752
02	LED Lighting – Exterior	$872	$777	$95
03A	Solar PV - Babylon ES	$54,213	$54,213	$0
03B	Solar PV - Grade School	$59,623	$59,623	$0
03C	Solar PV - Jr & HS	$124,612	$124,612	$0
04	Roof Restoration at Grade School	$8,882	$0	$8,882
05	Building Envelope Upgrades	$7,320	$822	$6,498
06	Piping Insulation	$5,001	$0	$5,001
07	Steam Trap Upgrades - Retrofit	$4,735	$0	$4,735
08	Boiler Replacements	$36,985	$0	$36,985
09	Walk-In Cooler/Freezer Controls	$1,029	$0	$1,029
10	Plug-load Controls	$5,336	$5,336	$0
11	Retro-commissioning	$8,718	$0	$8,718
12	Exhaust Fan Control for Air Quality	$18,848	$0	$18,848
13A	Building Controls - Boiler Room Central BMS	$17,080	$0	$17,080
14B	Building Controls - AHU Units with DCV	$18,078	$0	$18,078
	Totals	**$437,286**	**$302,584**	**$134,701**

Notes: 1. Annual Project Benefits are calculated using Baseline Unit Energy Rates.

5. Measurement & Verification Methodologies Approach

The following is an overview of the measurement and verification methodologies as more fully detailed in the International Measurement and Verification Protocol (IPMVP). The protocol provides a framework and standard that is widely accepted by industry. ESG models Measurement and Verification Plans utilizing IPMVP as a guiding principle.

ESG shall apply the methodologies as specified in the Measurement and Verification Plan.

5.1. Option A – Retrofit Isolation – Key Parameter Measurement(s)

Measured Project Benefits are determined by partial field measurement of the system to which an Improvement Measure was applied, separate from the rest of the facility. Project Benefits are derived from a computation using a combination of measurements of some key parameters and estimates of others. Estimates will be used where the combined uncertainty from all such estimates will not significantly affect the overall confidence in reporting benefits, or the uncertainty from all estimates is agreeable by all parties.

Review of the design and installation of Improvement Measures is intended to demonstrate that the estimated values represent the probable values. Agreed-upon values will be shown in the Measurement and Verification Plan. Engineering calculations using short-term pre and post-retrofit measurements and stipulations are used to calculate Measured Project Benefits for the duration of the Performance Period.

5.2. Option B – Retrofit Isolation – All Parameter Measurement

Measured Project Benefits are determined by measurement of key parameters of the system to which an Improvement Measure was applied, separate from the rest of the facility. Engineering calculations using short term, long-term or continuous pre and post-retrofit measurements are used to calculate the Measured Project Benefits for the duration of the Performance Period.

5.3. Option C: Whole Facility

Option C involves use of data from utility meters, whole facility meters, or sub-meters and independent variables to assess the performance of the facility.

Option C assesses the impact of any type of Improvement Measure, but not individually if more than one is applied to a utility meter. This option determines the collective Measured Project Benefits of all Improvement Measures applied to the part of the facility monitored by the utility meter. Also, since whole building meters are used, Measured Project Benefits reported under Option C include the impact of any other change made in the facility, positive or negative. Therefore, adjustments to the baseline may be included to provide accurate utility comparison.

5.4. Option D: Calibrated Simulation

Option D: Calibrated Simulation uses facility simulation software to predict utility use, typically when baseline energy does not exist. Savings determined with Option D are based on computer simulation models of physical systems which are used to predict facility or utility consumption or demand. These types of models are based on engineering equations that capture details of the system.

Such simulation model must be "calibrated" so that it predicts a utility use and demand pattern that reasonably matches actual utility consumption and demand data from either the base-year or a post-retrofit year.

Option D may be used to assess the performance of all Improvement Measures in a facility, akin to Option C. However, different from Option C, multiple runs of the simulation tool in Option D allow estimates of the Measured Project Benefits attributable to each Improvement Measure within a multiple Improvement Measure project.

Option D may also be used to assess just the performance of individual systems within a facility, akin to Options A and B. In this case, the system's utility use must be isolated from that of the rest of the facility by appropriate meters.

5.5. Non-Measured Project Benefits

Benefit can be obtained without measurements for a reduction in utility consumption, as well as cost avoidance of materials and service contracts purchased, due to the implementation of this project. These benefits are identified as Non-measured Utility Cost Avoidance, Operational and Maintenance Cost Avoidance, and Capital Expenditure Cost Avoidance.

5.5.1. Utility Cost Avoidance

If a utility reduction is already known with adequate accuracy, or when it is more costly to measure than justified by the increase in certainty, then measurement of the utility reduction may not be necessary or appropriate. The utility reductions from these Improvement Measures are agreed to by the Owner as achieved throughout the Performance Period, without any further verification. This benefit is identified as Non- Measured Utility Cost Avoidance.

5.5.2. Operational and Maintenance Cost Avoidance, and Capital Expenditure Cost Avoidance

Benefit associated with equipment repair or replacement costs, as well as a reduction in service contracts due to the repair or replacement of equipment, may be realized as a benefit from the Project. Once estimations of these cost benefits have been calculated, based on historical records and/or industry pricing, the cost avoidance benefit from the Improvement Measure is agreed to by the Owner as achieved throughout the Performance Period, without any further verification. These benefits are identified as Non-Measured Operational and Maintenance Cost Avoidance, or Non-Measured Capital Expenditure Cost Avoidance.

Owner agrees that the Non-Measured Project Benefits are reasonable and that the installation of the Improvement Measures will enable Owner to take actions that will result in the achievement of such Non-Measured Project Benefits. Owner has furnished the foregoing information to ESG, which information forms the basis of the Non-Measured Project Benefits.

6. Responsibility *(Obligation/Responsibilities)*

6.1. Contractor Responsibilities

6.1.1. See Measurement and Verification Plan

6.2. Owner Responsibilities

6.2.1. Providing ESG, its subcontractors, and its agents reasonable and safe access to all facilities and properties that are subject to the Project and/or Performance Period Services;

6.2.2. Providing for shut down and scheduling of affected locations during installation, including timely shutdowns of chilled water and hot water systems as needed to accomplish the Project and/or Performance Period Services;

6.2.3. Properly maintaining and performing appropriate preventative maintenance on any equipment and building systems affecting the Annual Project Benefits in accordance with manufacturers' standards and specifications;

6.2.4. Providing the utility bills, reports, and similar information reasonably necessary for performing ESG's obligations under the Performance Period within five (5) days of Owner's receipt and/or generation or ESG's request therefor; Utility rate information shall be provided by the Owner at the request of ESG at any point during the year; but shall be provided by the Owner on an annual basis at a minimum (at the end of each Fiscal Year).

6.2.5. Providing all records relating to energy and/or water usage and related maintenance of the Facilities and relevant equipment as requested by ESG;

6.2.6. Providing and installing utility sub-meters on all new construction and/or additions built during the Performance Period as requested by ESG or, alternatively, paying ESG's applicable fees for calculating necessary adjustments to the Annual Project Benefits as a result of the new construction;

6.2.7. Owner is responsible for the infrastructure required to maintain proper water flow at low-flow fixtures.

6.2.8. Owner is responsible for the infrastructure required to maintain proper air flow in facilities with airside improvements.

6.2.9. Allow ESG personnel or representatives, the access to building automation systems for trend data where applicable.

6.2.10. Owner square-footage at time of contract is referenced is listed in Section 3.4. Any additional square-footage in buildings will require a modification to the baseline. Such modifications will be agreed upon by ESG and the Owner.

6.2.11. Owner student population at time of contract is described in Attachment B2 Existing and Proposed Conditions. A +/- 3%. material change in this number may require a modification to the baseline. Such modifications will be agreed upon by ESG and the Owner.

6.3. Changes in use or condition; Adjustments to baseline and/or Annual Project Benefits

6.3.1. Owner agrees to notify ESG, within fourteen (14) days, of:

6.3.1.1. any actual or intended change, whether before or during the Performance Period, in the use of any facility, equipment, or Improvement Measure included in this Project;

6.3.1.2. any proposed or actual expansions or additions to the premises or any building or facility at the premises;

6.3.1.3. a meter replacement or change to utility services to all or any portion of the premises; or

6.3.1.4. any other change or condition arising before or during any Performance Period that reasonably could be expected to change the amount of Total Project Benefits realized under this Contract.

6.3.2. Change, expansion, addition, or condition would include, but is not limited to:

6.3.2.1. changes in the primary use of any facility, Improvement Measure, or portion of the premises;

6.3.2.2. changes to the hours of operation of any facility, Improvement Measure, or portion of the premises;

6.3.2.3. changes or modifications to the Improvement Measures or any related equipment;

6.3.2.4. failure of any portion of the premises to meet building codes;

6.3.2.5. changes in utility suppliers, number of meters, utility rates, method of utility billing, or method of utility purchasing;

6.3.2.6. insufficient or improper maintenance or unsound usage of the Improvement Measures or any related equipment at any facility;

6.3.2.7. changes to the Improvement Measures or any related equipment or to any facility or portion of the premises required by building codes or any governmental or quasi-governmental entity; or

6.3.2.8. additions or deletions of Improvement Measures or any related equipment at any facility or portion of the premises

6.3.3. In the event, ESG does not receive notification of the above changes, Owner agrees to pay ESG, in addition to any other costs per the Contract, the applicable hourly consulting rate for the time it took to determine the changes and to make any adjustments and/or corrections to the Project as a result of the changes, plus all reasonable and documented out of pocket expenses, including travel costs.

6.3.4. Upon changes in use or condition, identified by ESG or Owner, ESG will calculate adjustment to the Baseline and/or Annual Project Benefits to reflect the impact of such change or condition. The adjustment shall become effective as of the identified date the change or condition occurred but shall be documented in the next Annual Reconciliation Report for Owner review.

6.3.5. The M&V Services Fee includes the calculation and determination of minor, Routine and Non-Routine adjustments to the guarantee savings, such as year to year changes in occupancy or regular upgrades to replace obsolete energy or water using equipment such as toilets, refrigerators or computer labs. Without the presence of a Material Change in use or occupancy utility consumption should remain relatively steady year after year. Due to the extent of services likely required to perform the analysis, the M&V Services Fee does not include the time and services required to investigate and determine the actual impact of a Material Change. In the event ESG notices a Material Change in energy or water consumption ESG will make a good faith estimate of the change and adjust the guarantee savings accordingly. ESG will present its good faith estimate to the Owner in the next Annual Reconciliation Report. In the event the Owner disagrees with the adjustment ESG will provide the Owner with an estimate for the additional investigation services and information about its standard hourly pricing. If the Owner desires to proceed with the additional services the parties will execute a change order to add the services to the Contract and to increase the M&V Services Fee accordingly, otherwise the adjustment resulting from the good faith estimate shall be considered agreed upon by the Parties.

6.3.6. In the event it is discovered that items included in the Project have already been replaced or retrofitted by the Owner prior to the implementation of the Project, the Owner authorizes ESG to take credit for the savings associated with the items.

6.3.7. Environmental Attributes

As a result of the implementation of this Project, certain Environmental Attributes may be available, either now or in the future. This section specifies the process whereby the Owner will assign such Environmental Attributes to ESG.

"Environmental Attributes" means credits, deductions, benefits, emission reductions, incentives, offsets, and allowances, howsoever entitled, which are directly attributable to and arising from the implementation of this Project, whether such Environmental Attributes now exist or are developed in the future. Environmental Attributes include but are not limited to: (1) Any avoided emissions of pollutants to the air, soil, or water; (2) Any avoided emissions of carbon dioxide (CO2), methane (CH4) and other greenhouse gases (GHGs); (3) green tags; (4) renewable energy credits; and (5) The reporting rights to these avoided emissions such as White Tag Reporting Rights; (6) EPAct 179D. Environmental Attributes also include any energy, capacity, reliability, or other energy reduction attributes that result from the implementation of this Project.

To the extent allowable by law, Environmental Attributes arising from the implementation of this Project shall be owned by ESG, and the Owner agrees to execute all required documentation to assign Environmental Attributes to ESG. If any government, or other entity, filings are required to obtain the benefits of the Environmental Attributes, the Owner hereby permits ESG to prepare and file such documents, provided that the Owner is first provided the opportunity to review and modify any such documents before filing.

6.3.8. Rebates and Incentives

All benefits realized by the Owner that result from activities undertaken by ESG, including any utility rebates or other incentives earned by the Owner as a direct result of the installed Improvement Measures provided by ESG, will be credited to the applicable Performance Period. Rebate values are estimates, subject to

change by the utility or rebate program administrator, and may not be guaranteed by ESG. Additional detailed information is contained in Attachment B4 – 6.3.8 Rebates and Incentives Details.

6.4. Dispute Resolutions

The Owner has agreed to the M & V Plan, including the methodologies, the calculations, operating parameters, formulas and constants as defined herein. The reconciliation of the Annual Project Savings shall be made in accordance with the M&V Plan as written herein. In the event of a dispute involving any aspect of the M&V Plan or the Annual Project Savings the parties shall promptly attempt in good faith to resolve the dispute by negotiation.

7. Performance Period Services

7.1. Schedule and reporting of Performance Period Activities

Item	Recommended time of submission	Owner review and acceptance period
Construction Period Reconciliation Report	90 days after Project Acceptance	30 days
Annual Reconciliation Report	90 days after Annual Performance Period	30 days

7.2. Performance Period Services Termination Procedures

During a Performance Period, Owner may cancel the annual Performance Period Services (PPS) by providing written notice to ESG no more than 30 days after the delivery of the Annual Reconciliation Report. Owner will be responsible for Performance Period Service fee, on a prorated basis, if cancellation occurs after this date.

If Owner makes such request to cancel the annual PPS, the parties agree that ESG will no longer be obligated to perform the remaining annual PPS, and the Total Project Benefits guaranteed by ESG during the term of the Contract shall be considered fully satisfied.
Additionally, if Owner fails to pay the PPS costs within 60 days of receipt of the PPS invoice, ESG has the right to terminate the PPS. In this event, both parties agree that ESG will no longer be obligated to perform the remaining annual PPS, and the Total Project Benefits guaranteed by ESG during the term of the Contract shall be considered fully satisfied.

7.3. Performance Period Services Fees

Performance Period	Performance Period Services Fee ($)
1*	Included in Project Cost
2*	Included in Project Cost
3*	Included in Project Cost
4	$28,558
5	$29,129
6	$29,712
7	$30,306
8	$30,912
9	$31,530
10	$32,161
11	$32,804
12	$33,460
13	$34,129
14	$34,812
15	$35,508
16	$36,218
17	$36,943
18	$37,682
Totals	**$493,865**

Note: * PPS Fees have been included in the Contract Price.

Should the Owner decide to extend the M&V Services beyond the Initial Term of Years 1-3, the Annual M&V Services Reporting Fee will be escalated at a rate of 2% per year, starting in Year 5.

7.4. Performance Period Services Payment Terms

The PPS Fee for the first three years have been included in the Contract Price. Future PPS Fees will be billed annually during the Performance Period once the previous year's Annual Reconciliation Report is delivered.

Attachment B1

3.1 Utility Baseline Information Details

7.5. Baseline Utility Information

7.5.1. Electric Baseline Account Information (July 2022 – June 2023)

Facility Name	Account Number	Meter Number	Tariff Code
Babylon ES	7074652050	080345103	285
Babylon Memorial Grade School	7074651000	951567100	281
Babylon Jr. & HS	7075416600	080344355	285

7.5.2. Electric Baseline (July 2022 – June 2023 Note 16)

Facility Name	Account Number	Peak Monthly kW	Annual kW	Total kW $	$/kW	Annual kWh	Total kWh $	$/kWh	Solar $/kWh	Overall Total $
Babylon ES (note 15)	7074652050	113.1	1,616	$21,418	$13.3	365,920	$57,401	$0.157	$0.1876	$82,616
Babylon Memorial Grade School	7074651000	125.0	1,246	$22,452	$18.0	385,320	$58,543	$0.152	$0.1876	$81,903
Babylon Jr. & HS	7075416600	332.2	4,436	$54,305	$12.2	1,022,880	$162,354	$0.159	$0.1876	$220,403

Notes:

1. Certain small accounts and meters not impacted by the ECMs or where there would be negligible impact may be excluded.
2. PSEG Long Island is the owner's commodity supplier of electricity during the baseline and the transport company.
3. Tariff rates are from PSEG Long Island. Tariff 281 is "Secondary, Commercial, Large, General Use," and Tariff 285 is "Secondary, Commercial, Large, Multiple Periods."
4. The "Peak Monthly kW" demand is the highest billing period demand during the 12-month baseline period.

5. The "Annual kW" demand is defined as the summation of the individual billing period demands for the baseline period.
6. The "Total kW $" is defined as the summation of the individual billing period demand costs for the baseline period and does not include fixed charges.
7. The "$/kW" rate is defined as the "Total kW $" divided by "Annual kW" for the baseline period. This is the effective demand rate for ECMs/IMs other than solar photovoltaics.
8. The "Annual kWh" is the summation of the billed kWh for the baseline period.
9. The "Total kWh $" is the summation of the individual billing period costs for the baseline period minus "Total kW $" and any fixed charges.
10. The "Total Non-Fixed $" is defined as the summation of the total costs for the baseline period, including demand charges, minus any fixed charges.
11. The "Overall Total $" is defined as the summation of the total costs for the baseline period, including any demand and fixed charges.
12. The "$/kWh" rate is defined as the "Total kWh $" divided by "Annual kWh" for the baseline period (i.e., it does not include demand and fixed charges). This is the effective energy rate used for ECMs/IMs other than solar photovoltaic.
13. The "Solar$/kWh" rate is the specific effective rate for the solar photovoltaic ECM/IM. This section provides details on the rate determination.
14. The "Total Blended $/kWh" unit cost is the total 12-month utility costs, including demand and fixed charges, divided by the total summation of the baseline kWhs (i.e., including demand and fixed charges).
15. Estimated data: The billing data provided was missing a page for account number 7074652050 (Babylon ES). This impacted the summer usage period from September 23rd, 2022, through September 30th, 2022. The missing data was estimated/calculated by using the recorded meter data shown on the bill for the before and after periods, which were then multiplied by a 160 multiplier to obtain the missing energy and demand units. The demand units were multiplied by the $/kW cost of the preceding month to obtain the demand costs.
16. The Solar $/kWh rate is based on projected July 2024 to June 2025 rate. See Section 3.1.7 Determination of Effective Solar Photo Voltaic Electric Rates.

7.5.3. Natural Gas Baseline Account Information

Facility Name	Account Number	Meter Number	Tariff Code	Tariff	M&V Option
Babylon ES	31530-12002	05153094	170	Non-Resid Heating	C
Babylon Memorial Grade School	43960-85004	05152350	170	Non-Resid Heating	C
Babylon Jr. & HS	82096-21007	1247306	170	Non-Resid Heating	C
Babylon ES	56406-54007 (kitchen & DHW)	04772707	250	Non-Resid General Use	N/A
Babylon Memorial Grade School	19143-54001 (kitchen & DHW)	01310040	250	Non-Resid General Use	N/A
Babylon Jr. & HS	94554-94004 (kitchen & DHW)	05409729	250	Non-Resid General Use	N/A

7.5.4. Natural Gas Baseline (July 2022 – June 2023)

Facility Name	Account Number	Therms	Total Non-Fixed $	Overall Total $[2]	$/Therm[3]	Total Blended $/therm
Babylon ES	31530-12002	45,187	$43,319	$43,797	$0.96	$0.97
Babylon Memorial Grade School	43960-85004	38,002	$50,867	$51,345	$1.34	$1.35
Babylon Jr. & HS	82096-21007	99,209	$117,150	$117,629	$1.18	$1.19

Notes:

1. The buildings have two separate gas feeds: one serves the building heating boilers (Tariff 170), and the other serves kitchens and domestic hot water (DHW) heaters (Tariff 250). The natural gas utility accounts relating to Tariff 250 are shown for reference only and are not impacted by any of the measures in the related scope of work and are otherwise not used.
2. The "Overall Total $" is defined as the summation of the total costs for the baseline period, including any demand and fixed charges.
3. National Grid is the owner's commodity supplier of Natural Gas during the baseline and the transport company.
4. The "Therms" or units show the summation of the billed therms or natural gas units converted to therms for the baseline period.
5. The "Total Non-Fixed $" is defined as the summation of the total costs for the baseline period, including any demand charges minus any fixed charges. The fixed charges were estimated at $1.31/day per account.

6. The "$/therm" effective rate was calculated by dividing the "Total-Non Fixed $" divided by the total "Therms."
7. The "$/Therm" cost is the total 12-month utility costs, including demand, divided by the total summation of the baseline "Therms" (i.e., it does not include fixed charges).
8. The "Total Blended $/Therm" cost is the total 12-month utility costs, including demand and fixed charges, divided by the total summation of the baseline "Therms" or units (i.e., including fixed charges).
9. The electric generators for Babylon Elementary and Babylon Grade are supplied by natural gas accounts 31530-12002 and 43960-85004, respectively. For the purpose of the baseline, natural gas usage for power generation was assumed to be negligible and only used for testing, not power generation.
10. Note: Natural gas utility data provided for Babylon ES for the period of July 2022 – June 2023 does not contain 12 months of billing period usage due to billing and/or meter errors. Due to the limited number of data points available, ESG may use alternative baseline periods prior to the start of construction for the purposes of energy savings evaluation.
11. Babylon Elementary's Domestic Hot Water systems can be heated via a heat exchanger heated by the building heating hot water loop. During site visits, the domestic hot water system used the natural gas supplied via the 250 Tariff rate and did not use the heating hot water loop associated with Tariff 170. For the baseline, it was assumed that no domestic hot water heating was supplied by Babylon Elementary School's natural gas account 31530-12002 Tariff 170.

7.5.5. Fuel Oil Baseline (July 2022 – June 2023)

Facility Name	Annual Gallons	Total $
Babylon ES	0	0
Babylon Memorial Grade School	0	0
Babylon Jr. & HS	0	0

Notes:

The existing heating systems are dual-fuel systems that operate with natural gas or fuel oil. The district has indicated that the fuel oil is only a backup and is not used. The natural gas accounts are not interruptible rates.

7.5.6. Determination of Fuel oil Baseline

The fuel oil baseline was determined based on information provided by the district and on-site interviews with staff. The baseline usage of fuel oil is zero, as the fuel oil system is not used except for occasional testing and backup heating fuel sources, which are not used. Natural gas is not on interruptible rates.

7.5.7. Determination of Effective Solar Photo Voltaic Electric Rates

The electric baseline utility rates for Solar Photo Voltic (PV) projects in this agreement are based on the New York State Energy Research & Development Authority (NYSERDA) Value Stack Calculator V2.7.

VDER, or the Value Stack, is New York's mechanism to compensate for energy generated by distributed energy resources (DER), such as solar PV. The Value Stack compensates projects based on when and where they provide electricity to the grid.

The inputs used in the VDER rate calculator are shown towards the end of this attachment. They were used to calculate the first-year baseline utility rate for Solar PV.

7.5.8. BASELINE MONTHLY DETAILS

Babylon Elementary School Baseline Monthly Details

Electric Baseline - Babylon Elementary School

Starting Date	Ending Date	Total (kWh)	Demand 2 (kW)	Demand 3 (kW)	Demand 2 + 3 (KW)	Fixed Charges ($)	Energy Charges ($)	Demand Charges ($)	Monthly Total ($)
6/23/2022	7/25/2022	32,160	88	84	173	$ 432	$ 5,981	$ 3,167	$ 9,580
7/25/2022	8/25/2022	35,680	90	85	174	$ 419	$ 6,833	$ 3,190	$ 10,441
8/25/2022	9/23/2022	33,600	111	113	224	$ 392	$ 6,525	$ 3,726	$ 10,643
9/23/2022	10/24/2022	26,560	88	97	185	$ 419	$ 3,132	$ 3,011	$ 6,561
10/24/2022	11/22/2022	27,200	0	89	89	$ 392	$ 4,792	$ 645	$ 5,828
11/22/2022	12/22/2022	31,680	0	96	96	$ 405	$ 5,305	$ 716	$ 6,426
12/22/2022	1/25/2023	33,600	0	94	94	$ 297	$ 5,208	$ 842	$ 6,346
1/25/2023	2/22/2023	28,320	0	90	90	$ 196	$ 4,090	$ 683	$ 4,969
2/22/2023	3/24/2023	30,080	0	92	92	$ 210	$ 3,879	$ 746	$ 4,835
3/24/2023	4/24/2023	26,240	0	98	98	$ 217	$ 3,201	$ 818	$ 4,236
4/24/2023	5/23/2023	30,080	0	98	98	$ 203	$ 3,970	$ 765	$ 4,938
5/23/2023	6/23/2023	30,720	106	97	203	$ 217	$ 4,486	$ 3,109	$ 7,812
	Total =	**365,920**	**484**	**1,132**	**1,616**	**$ 3,797**	**$ 57,401**	**$ 21,418**	**$ 82,616**

Note: Demand Rate 3 is year-round, and Demand Rate 2 is additive in the summer months (June – September).

Natural Gas Baseline
Babylon ES

Starting Date	Ending Date	Total Gas (therms)	Monthly Total ($)
6/27/2022	7/27/2022	-	$39
7/27/2022	8/26/2022	-	$39
8/26/2022	9/26/2022	-	$41
9/26/2022	1/0/1900	-	
1/0/1900	11/28/2022	12,811	$16,023
11/28/2022	12/27/2022	-	$38
12/27/2022	1/26/2023	-	$39
1/26/2023	2/24/2023	-	$38
2/24/2023	3/28/2023	-	$42
3/28/2023	1/0/1900	-	
1/0/1900	5/27/2023	31,969	$26,984
5/26/2023	6/27/2023	407	$513
	Total =	**45,187**	**$43,797**

Babylon Grade School Baseline Monthly Details

Electric Baseline - Babylon Memorial Grade School

Starting Date	Ending Date	Total (kWh)	Billed Demand (KW)	Fixed Charges ($)	Energy Charges ($)	Demand Charges ($)	Monthly Total ($)
6/23/2022	7/26/2022	30,720	92	$ 81	$5,503.44	$ 1,883	$ 7,468
7/26/2022	8/26/2022	36,360	94	$ 76	$6,749.52	$ 1,798	$ 8,624
8/26/2022	9/23/2022	36,000	125	$ 69	$6,622.97	$ 2,171	$ 8,863
9/23/2022	10/25/2022	31,200	100	$ 78	$5,222.26	$ 1,847	$ 7,147
10/25/2022	11/22/2022	29,160	103	$ 69	$4,835.35	$ 1,640	$ 6,544
11/22/2022	12/22/2022	33,360	106	$ 74	$5,254.33	$ 1,800	$ 7,128
12/22/2022	1/26/2023	33,240	106	$ 88	$4,858.96	$ 2,154	$ 7,101
1/26/2023	2/23/2023	31,800	107	$ 71	$4,276.70	$ 1,763	$ 6,110
2/23/2023	3/24/2023	32,160	107	$ 73	$3,827.10	$ 1,826	$ 5,726
3/24/2023	4/25/2023	30,840	102	$ 81	$3,458.05	$ 1,920	$ 5,459
4/25/2023	5/25/2023	32,400	100	$ 76	$3,959.85	$ 1,712	$ 5,748
5/25/2023	6/23/2023	28,080	106	$ 73	$3,974.65	$ 1,939	$ 5,987
	Total =	**385,320**	**1,246**	**$ 908**	**$ 58,543**	**$ 22,452**	**$ 81,903**

Natural Gas Baseline
Babylon Memorial Grade School

Starting Date	Ending Date	Total Gas (therms)	Monthly Total ($)
6/27/2022	7/27/2022	4	$49
7/27/2022	8/26/2022	5	$53
8/26/2022	9/26/2022	4	$51
9/26/2022	10/26/2022	2,071	$2,958
10/26/2022	11/28/2022	4,183	$6,054
11/28/2022	12/27/2022	6,769	$9,704
12/27/2022	1/26/2023	6,047	$9,236
1/26/2023	2/24/2023	6,493	$8,876
2/24/2023	3/28/2023	6,614	$7,962
3/28/2023	4/27/2023	3,552	$4,032
4/27/2023	5/26/2023	1,992	$1,942
5/26/2023	6/27/2023	268	$430
	Total =	**38,002**	**$51,345**

Babylon Jr. & High School Baseline Monthly Details

Electric Baseline - Babylon Jr HS / HS

Starting Date	Ending Date	Total (kWh)	Demand 2 (kW)	Demand 3 (kW)	Demand 2 + 3 (KW)	Fixed Charges ($)	Energy Charges ($)	Demand Charges ($)	Monthly Total ($)
6/30/2022	7/29/2022	84,480	234	231	465	$ 392	$ 15,388	$ 7,790	$ 23,569
7/29/2022	8/31/2022	97,600	248	238	486	$ 446	$ 18,711	$ 9,222	$ 28,379
8/31/2022	9/29/2022	84,160	332	326	658	$ 392	$ 16,327	$ 11,045	$ 27,764
9/29/2022	10/28/2022	73,440	230	267	497	$ 392	$ 12,774	$ 2,395	$ 15,560
10/28/2022	11/30/2022	84,640	0	254	254	$ 446	$ 14,840	$ 2,081	$ 17,366
11/30/2022	12/29/2022	83,520	0	263	263	$ 392	$ 13,640	$ 1,897	$ 15,928
12/29/2022	1/31/2023	92,960	0	256	256	$ 244	$ 14,226	$ 2,274	$ 16,744
1/31/2023	2/28/2023	84,480	0	275	275	$ 196	$ 12,028	$ 2,079	$ 14,303
2/28/2023	3/30/2023	94,880	0	258	258	$ 210	$ 11,892	$ 2,092	$ 14,193
3/30/2023	4/28/2023	79,040	0	250	250	$ 203	$ 9,538	$ 1,958	$ 11,699
4/28/2023	5/30/2023	84,320	0	263	263	$ 224	$ 11,276	$ 2,277	$ 13,777
5/30/2023	6/29/2023	79,360	263	249	512	$ 210	$ 11,714	$ 9,197	$ 21,121
	Total =	1,022,880	1,307	3,129	4,436	$ 3,744	$ 162,354	$ 54,305	$ 220,403

Note: Demand Rate 3 is year-round, and Demand Rate 2 is additive in the summer months (June – September).

Natural Gas Baseline
Babylon Jr. & HS

Starting Date	Ending Date	Total Gas (therms)	Monthly Total ($)
6/27/2022	7/27/2022	-	$39
7/27/2022	8/26/2022	-	$39
8/26/2022	9/26/2022	45	$170
9/26/2022	10/26/2022	3,147	$4,077
10/26/2022	11/28/2022	10,788	$13,347
11/28/2022	12/27/2022	18,179	$23,029
12/27/2022	1/26/2023	17,254	$23,165
1/26/2023	2/24/2023	19,174	$23,016
2/24/2023	3/28/2023	19,196	$20,074
3/28/2023	4/27/2023	8,809	$8,327
4/27/2023	5/26/2023	2,612	$2,296
5/26/2023	6/27/2023	5	$48
	Total =	**99,209**	**$117,629**

7.5.9. Value Stack Calculator Inputs and Assumptions

The following are the assumptions and inputs used in the New York State Energy Research & Development Authority (NYSERDA) Value Stack Calculator V2.7 for calculating the VDER or Value Stack rate.

Babylon Elementary School

Solar Project Inputs

Utility	PSEG Long Island
NYISO zone	
Project Category	Remote crediting
Solar characteristics	
Solar generation	
Source for solar generation shape (kWh AC)	Calculated based on inputs below
Nearest location (weather file)	Brookhaven
Mount	Fixed (roof mount)
Azimuth	180° (S)
Solar system size (kW DC)	231.8
AC system size (kW AC)	210
Interconnection limit (kW AC)	5000
Inverter losses (% of DC energy)	4.0%
System losses (% of DC energy)	14.0%
On-site loads	
Source for on-site load shape (kWh)	Built-in DOE Commercial Reference Buildings
Building type (for on-site load shape)	Secondary school
Annual electric usage at host site (kWh)	0
Annual solar export degradation rate (%)	0.5%
Parasitic Loads	
Annual parasitic loads (kWh)	0
Storage	
Paired with storage?	No

Calculate Storage Degradation

Financial Analysis Specifications	
Project start year	2025
Analysis lifetime (years)	25
Annual inflation rate	2.0%
Project discount rate (nominal)	8.0%

Compensation Inputs

LSRV and DRV		
LSRV location?		Yes
LSRV rate basis		Current LSRV rate
DRV rate basis	Years 1-10	Current DRV rate
	Years 11-20	Current DRV rate
	Years 21-25	Current DRV rate
Energy value		
Locational-Based Marginal Price (LBMP) Basis		User-input 8760
Annual LBMP escalator (real growth plus inflation rate)		0.0%
Capacity value		
Capacity value basis		2022 Alternative 1 Rate
Annual ICAP escalation rate (real growth plus inflation rate)		0.0%
Loss Factor Adjustment		
Service Classification for Loss Factor - Energy		Total T&D
Service Classification for Loss Factor - Capacity		Total T&D
Environmental		
Environmental Value ($Nominal/MWh)		$31.03
Customer Bill Savings		
Energy rate avoided by on-site consumption of solar ($Nominal/kWh)		
Assumed energy rate annual escalator (real growth plus inflation rate)		2.0%

Babylon Grade School

Solar Project Inputs

Utility	PSEG Long Island
NYISO zone	
Project Category	Remote crediting
Solar characteristics	
Solar generation	
Source for solar generation shape (kWh AC)	Calculated based on inputs below
Nearest location (weather file)	Brookhaven
Mount	Fixed (roof mount)
Azimuth	180° (S)
Solar system size (kW DC)	263.8
AC system size (kW AC)	200
Interconnection limit (kW AC)	5000
Inverter losses (% of DC energy)	4.0%
System losses (% of DC energy)	14.0%
On-site loads	
Source for on-site load shape (kWh)	Built-in DOE Commercial Reference Buildings
Building type (for on-site load shape)	Secondary school
Annual electric usage at host site (kWh)	0
Annual solar export degradation rate (%)	0.5%
Parasitic Loads	
Annual parasitic loads (kWh)	0
Storage	
Paired with storage?	No

Calculate Storage Degradation

Financial Analysis Specifications	
Project start year	2025
Analysis lifetime (years)	25
Annual inflation rate	2.0%
Project discount rate (nominal)	8.0%

Compensation Inputs

LSRV and DRV		
LSRV location?		Yes
LSRV rate basis		Current LSRV rate
DRV rate basis	Years 1-10	Current DRV rate
	Years 11-20	Current DRV rate
	Years 21-25	Current DRV rate
Energy value		
Locational-Based Marginal Price (LBMP) Basis		User-input 8760
Annual LBMP escalator (real growth plus inflation rate)		0.0%
Capacity value		
Capacity value basis		2022 Alternative 1 Rate
Annual ICAP escalation rate (real growth plus inflation rate)		0.0%
Loss Factor Adjustment		
Service Classification for Loss Factor - Energy		Total T&D
Service Classification for Loss Factor - Capacity		Total T&D
Environmental		
Environmental Value ($Nominal/MWh)		$31.03
Customer Bill Savings		
Energy rate avoided by on-site consumption of solar ($Nominal/kWh)		
Assumed energy rate annual escalator (real growth plus inflation rate)		2.0%

Babylon High School

Solar Project Inputs

Utility	PSEG Long Island
NYISO zone	
Project Category	Remote crediting
Solar characteristics	
Solar generation	
Source for solar generation shape (kWh AC)	Calculated based on inputs below
Nearest location (weather file)	Brookhaven
Mount	Fixed (roof mount)
Azimuth	180° (S)
Solar system size (kW DC)	566.0
AC system size (kW AC)	420
Interconnection limit (kW AC)	5000
Inverter losses (% of DC energy)	4.0%
System losses (% of DC energy)	14.0%
On-site loads	
Source for on-site load shape (kWh)	Built-in DOE Commercial Reference Buildings
Building type (for on-site load shape)	Secondary school
Annual electric usage at host site (kWh)	0
Annual solar export degradation rate (%)	0.5%
Parasitic Loads	
Annual parasitic loads (kWh)	0
Storage	
Paired with storage?	No

Calculate Storage Degradation

Financial Analysis Specifications	
Project start year	2025
Analysis lifetime (years)	25
Annual inflation rate	2.0%
Project discount rate (nominal)	8.0%

Compensation Inputs

LSRV and DRV		
LSRV location?		Yes
LSRV rate basis		Current LSRV rate
DRV rate basis	Years 1-10	Current DRV rate
	Years 11-20	Current DRV rate
	Years 21-25	Current DRV rate
Energy value		
Locational-Based Marginal Price (LBMP) Basis		User-input 8760
Annual LBMP escalator (real growth plus inflation rate)		0.0%
Capacity value		
Capacity value basis		2022 Alternative 1 Rate
Annual ICAP escalation rate (real growth plus inflation rate)		0.0%
Loss Factor Adjustment		
Service Classification for Loss Factor - Energy		Total T&D
Service Classification for Loss Factor - Capacity		Total T&D
Environmental		
Environmental Value ($Nominal/MWh)		$31.03
Customer Bill Savings		
Energy rate avoided by on-site consumption of solar ($Nominal/kWh)		
Assumed energy rate annual escalator (real growth plus inflation rate)		2.0%

Attachment B2

3.4 Existing and Proposed Conditions

7.6. Existing Conditions and Proposed Conditions

7.6.1. *Existing Facility List*

The following is a list of Facilities and related names, abbreviations, and other related information:

Abbreviation	Facility	Address
"BES"	Babylon Elementary	171 Ralph Ave, Babylon, NY 11702
"BMGS"	Babylon Memorial Grade School	169 Park Ave, Babylon, NY 11702
"BJHS"	Babylon Jr. & High School	50 Railroad Ave, Babylon, NY 11702

Note: The facilities may also be referenced by an abbreviated name that does not include the word "School" as part of the facility name. For example, "Elementary School," "Grade School," and "High School" may be abbreviated as "ES," "GS," and "HS."

7.6.2. EXISTING CONDITIONS

7.6.3. *Existing Facility Baseline Details*

Facility Name	Square Footage	Student Population	Faculty Population	Overall Total
Babylon ES	68,750	362	102	464
Babylon Memorial Grade School	63,000	477	42	519
Babylon Jr. & HS	183,300	692	102	794

Notes:

1. The owner provided student and staff population data for 2023/2024.
2. The existing natural gas-fired electric backup generators at Babylon Elementary and Babylon Grade Schools were not used for electric generation during the baseline except for periodic testing.

7.6.4. *Existing Facility Baseline Use Details*

Interviews with building staff and Owner determined the following information regarding after-hours and weekend activities.

a. Babylon Elementary
   i. On Weekdays during the school year, the Cafeteria is regularly occupied until 6:30 PM.
   ii. On weekends, gyms are sometimes used, including by outside organizations. The control systems are scheduled on an as-needed basis.

b. Babylon Grade
   i. On Weekdays during the school year, the Cafeteria is regularly occupied until 6:30 PM.
   ii. On Weekends, gyms are sometimes used, including by outside organizations. The control systems are scheduled on an as-needed basis.

c. Babylon High

i. Weekends and gyms are frequently used, including by outside organizations. The control systems are scheduled on an as-needed basis.

ii. the gyms, cafeterias, auditoriums, and library are often used on Saturdays.

7.6.5. *Existing Facility Baseline Ventilation*

Notes:

1. The following are specific observations relating to the baseline ventilation conditions outside of normal ventilation observed during occupied times:

a. Babylon Elementary

i. Based on CO_2 differential readings between room and unit ventilator (UV) discharge

1. Room C6 Unit ventilator outdoor air (OA) damper was shut

b. Babylon Grade

c. The Gym Occupied Mode schedule per the control screen on 12/6/2023 was Monday through Friday, 5 AM to 8:30 AM and 12 PM to 1 PM.

i. Based on CO_2 differential readings between room and unit ventilator (UV) discharge

1. Room 51 Unit ventilator outdoor air (OA) damper was shut

2. One of two UV OA dampers in the Cafeteria was shut

d. Babylon High

i. Room 120 UV in unoccupied mode with outdoor air (OA) damper commanded shut during occupied time based on controls

ii. Rooms 100, 139, 164, 165, 277, 278, 280, 310 UV in occupied mode with outdoor air (OA) damper commanded shut during occupied time based on controls

iii. Chorus Room—Ventilation was turned off during the site visit due to high space CO2 levels and the RTU serving space having a fan in Auto vs. On.

2. Existing building automation systems or HVAC controls have a PANDEMIC MODE, increasing outdoor ventilation and air above the normal setpoints. The outdoor ventilation air increase is correlated to outdoor air temperature and is reduced during colder outdoor air temperatures or high / hotter outdoor air temperatures. The settings for the facilities also indicated:

a. "Building Wide Minimum Outdoor Air (When Pandemic OA Reset is Disabled): 0% Open"

i. Babylon Elementary – This was observed

ii. Babylon Grade—The Pandemic Mode and related outdoor air damper controls in the building automation system were not examined at Babylon Grade; however, it is assumed that the settings are the same as those at Elementary and High School.

iii. Babylon High – This was observed

7.6.6. PROPOSED CONDITIONS

General Operating Conditions and Assumptions - The operating conditions for the Guarantee are set forth below and were used for all calculations made in this Contract. These operating conditions are agreed upon between the Owner and

ESG. If the Owner operates outside of the agreed operating conditions stated, ESG shall be notified following this Agreement and reserves the right to adjust the guarantee per this Agreement.

7.6.7. Proposed Facility Temperature Setpoints (Guarantee Term Operating Parameters)

Facility Area / Space / Zone / Unit	Occupied (Heat / Cool)	Unoccupied (Heat / Cool)	Standby (Heat / Cool)
Babylon Elementary			
Main / General	72°F / 74°F	60°F / 80°F	67°F / 77°F
New Classrooms	72°F / 74°F	60°F / 80°F	67°F / 77°F
Classrooms	72°F / 74°F	60°F / 80°F	67°F / 77°F
Library	72°F / 74°F	60°F / 80°F	67°F / 77°F
Gym	72°F / 74°F	60°F / 80°F	67°F / 77°F
Multipurpose / Cafe	72°F / 74°F	60°F / 80°F	67°F / 77°F
Office / Admin	72°F / 74°F	60°F / 80°F	67°F / 77°F
Babylon Memorial Grade School			
Main / General	72°F / 74°F	67°F / 77°F	67°F / 77°F
Classrooms	72°F / 74°F	60°F / 80°F	67°F / 77°F
Classrooms	72°F / 74°F	60°F / 80°F	67°F / 77°F
Classrooms	72°F / 74°F	60°F / 80°F	67°F / 77°F
Cafeteria	72°F / 74°F	60°F / 80°F	67°F / 77°F
Gym	72°F / 74°F	60°F / 80°F	67°F / 77°F
Library	72°F / 74°F	60°F / 80°F	67°F / 77°F
Music	72°F / 74°F	60°F / 80°F	67°F / 77°F
Office / Admin	72°F / 74°F	60°F / 80°F	67°F / 77°F
Babylon Jr. & High School			
Main / General	72°F / 74°F	60°F / 80°F	67°F / 77°F
Classrooms	72°F / 74°F	60°F / 80°F	67°F / 77°F
Classrooms	72°F / 74°F	60°F / 80°F	67°F / 77°F
Classrooms	72°F / 74°F	60°F / 80°F	67°F / 77°F
Classrooms Shops	72°F / 74°F	60°F / 80°F	67°F / 77°F
Library	72°F / 74°F	60°F / 80°F	67°F / 77°F
Music Area	72°F / 74°F	60°F / 80°F	67°F / 77°F
Auditorium	72°F / 74°F	60°F / 80°F	67°F / 77°F
Gym West	72°F / 74°F	60°F / 80°F	67°F / 77°F
Gym East	72°F / 74°F	60°F / 80°F	67°F / 77°F
Office / Admin	72°F / 74°F	60°F / 80°F	67°F / 77°F
Director Suite	72°F / 74°F	60°F / 80°F	67°F / 77°F
Kitchen	72°F / 74°F	60°F / 80°F	67°F / 77°F
Cafeteria	72°F / 74°F	60°F / 80°F	67°F / 77°F
Weight Room	72°F / 74°F	60°F / 80°F	67°F / 77°F
Wrestling Room	72°F / 74°F	60°F / 80°F	67°F / 77°F

Notes:

1. "Main / General" space is any normally occupied space not covered by another specific listed area, space, zone, or HVAC unit.

7.6.8. Proposed Facility Temperature Setpoint Modes (Guarantee Term Operating Parameters)

Facility Area / Space / Zone / Unit	M-F Occupied Hours	M-F Standby	Saturday Occupied	Saturday Standby	Sunday Occupied	Sunday Standby
Babylon Elementary						
Main / General	7AM–4PM	6AM-9PM	N/A	N/A	N/A	N/A
New Classrooms	7 AM–4 PM	6 AM-9 PM	N/A	N/A	N/A	N/A
Classrooms	7 AM–4 PM	6 AM-9 PM	N/A	N/A	N/A	N/A
Library	7 AM–6:30 PM	6 AM-9 PM	N/A	N/A	N/A	N/A
Gym	7AM–6:30PM	6AM-9PM	N/A	6AM–6PM	N/A	6AM–6PM
Multipurpose / Cafe	7 AM–6:30 PM	6 AM-9 PM	N/A	6 AM–6 PM	N/A	6 AM–6 PM
Office / Admin	7AM–4PM	6AM-9PM	N/A	N/A	N/A	N/A
DHW Systems*	6 AM–6 PM	N/A	N/A	N/A	N/A	N/A
Babylon Memorial Grade School						
Main / General	7AM–4PM	6AM-9PM	N/A	N/A	N/A	N/A
Classrooms	7 AM–4 PM	6 AM-9 PM	N/A	N/A	N/A	N/A
Classrooms	7AM–4PM	6AM-9PM	N/A	N/A	N/A	N/A
Classrooms	7AM–4PM	6AM-9PM	N/A	N/A	N/A	N/A
Cafeteria	7AM–6:30PM	6AM-9PM	N/A	6AM–6PM	N/A	6AM–6PM
Gym	7AM–6:30PM	6AM-9PM	N/A	6AM–6PM	N/A	6AM–6PM
Library	7AM–6:30PM	6AM-9PM	N/A	N/A	N/A	N/A
Music	7AM–4PM	6AM-9PM	N/A	N/A	N/A	N/A
Office / Admin	7AM–4PM	6AM-9PM	N/A	N/A	N/A	N/A
DHW Systems*	6AM–6PM	N/A	N/A	N/A	N/A	N/A
Babylon Jr. & High School						
Main / General	7AM–7PM	6AM-9PM	N/A	N/A	N/A	N/A
Classrooms	7AM–4PM	6AM-9PM	N/A	N/A	N/A	N/A
Classrooms	7AM–4PM	6AM-9PM	N/A	N/A	N/A	N/A
Classrooms	7AM–4PM	6AM-9PM	N/A	N/A	N/A	N/A
Classrooms Shops	7AM–4PM	6AM-9PM	N/A	N/A	N/A	N/A
Library	7AM–4PM	6AM-9PM	N/A	6AM-6PM	N/A	N/A
Music Area	7AM–4PM	6AM-9PM	N/A	N/A	N/A	N/A
Auditorium	7AM–4PM	6AM-9PM	N/A	6AM-6PM	N/A	N/A
Gym West	7AM–4PM	6AM-9PM	N/A	6AM-6PM	N/A	6AM–6PM
Gym East	7AM–4PM	6AM-9PM	N/A	6AM-6PM	N/A	6AM–6PM
Office / Admin	7AM–7PM	6AM-9PM	N/A	N/A	N/A	N/A
Director Suite	7AM–4PM	6AM-9PM	N/A	N/A	N/A	N/A
Kitchen	6AM–2PM	5AM-9PM	N/A	N/A	N/A	N/A
Cafeteria	7AM–4PM	6AM-9PM	N/A	6AM-6PM	N/A	N/A
Weight Room	7AM–4PM	6AM-9PM	N/A	N/A	N/A	N/A
Wrestling Room	7AM–4PM	6AM-9PM	N/A	N/A	N/A	N/A
Zone Valve	5AM–8PM	N/A	N/A	6AM-8PM	N/A	6AM–8PM
DHW Systems*	6AM–6PM	N/A	N/A	N/A	N/A	N/A

Notes:

1. *Domestic Hot Water (DHW) System times are based on the existing DHW building control setpoints observed on the Babylon Elementary building automation system during the IGA.

2. "Main / General" space is any normally occupied space not covered by another specific listed area, space, zone, or

HVAC unit.

3. Classrooms – Where multiple "Classrooms" are displayed for a facility this is to demonstrate specific and seperate classroom areas / zones / wings availble in the facility.

7.6.9. Proposed Facility Ventilation Schedule (School Year) (Guarantee Term Operating Parameters)

Facility Area / Space / Zone / Unit	M-F School Year	Saturday School Year	Sunday School Year
Babylon Elementary			
Main / General	7:00AM –4:00PM	N/A	N/A
New Classrooms	7:00AM – 4:00PM	N/A	N/A
Classrooms	7:00AM – 4:00PM	N/A	N/A
Library	7:00AM – 6:30PM	N/A	N/A
Gym	7:00AM – 6:30PM	N/A	N/A
Multipurpose / Cafe	7:00AM – 6:30PM	N/A	N/A
Office / Admin	7:00AM – 4:00PM	N/A	N/A
Babylon Memorial Grade School			
Main / General	7:00AM – 4:00PM	N/A	N/A
Classrooms	7:00AM – 4:00PM	N/A	N/A
Classrooms	7:00AM – 4:00PM	N/A	N/A
Classrooms	7:00AM – 4:00PM	N/A	N/A
Cafeteria	7:00AM – 6:30PM	N/A	N/A
Gym	7:00AM – 6:30PM	N/A	N/A
Library	7:00AM – 6:30PM	N/A	N/A
Music	7:00AM – 4:00PM	N/A	N/A
Office / Admin	7:00AM – 4:00PM	N/A	N/A
Babylon Jr. & High School			
Main / General	7:00 AM–4:00 PM	N/A	N/A
Classrooms	7:00 AM–4:00 PM	N/A	N/A
Classrooms	7:00 AM–4:00 PM	N/A	N/A
Classrooms	7:00 AM–4:00 PM	N/A	N/A
Classrooms Shops	7:00 AM–4:00 PM	N/A	N/A
Library	7:00 AM–4:00 PM	N/A	N/A
Music Area	7:00 AM–4:00 PM	N/A	N/A
Auditorium	7:00 AM–4:00 PM	N/A	N/A
Gym West	7:00 AM–4:00 PM	N/A	N/A
Gym East	7:00 AM–4:00 PM	N/A	N/A
Office / Admin	7:00 AM–4:00 PM	N/A	N/A
Director Suite	7:00 AM–4:00 PM	N/A	N/A
Kitchen	7:00 AM–4:00 PM	N/A	N/A
Cafeteria	7:00 AM–4:00 PM	N/A	N/A
Weight Room	7:00 AM–4:00 PM	N/A	N/A
Wrestling Room	7:00 AM–4:00 PM	N/A	N/A

7.6.10. Proposed Facility Ventilation Schedule (Summer) (Guarantee Term Operating Parameters)

The "Facility Ventilation Schedule for the (Summer)" is expected not to operate or be enabled for a more extended period than the "Facility Ventilation Schedule for the (School Year)."

7.6.11. Proposed Facility Exhaust Fan Schedule (Guarantee Term Operating Parameters)

Facility Area / Space / Zone / Unit	M-F School Year	Saturday School Year	Sunday School Year
Babylon Elementary			
General Exhaust Fans	Ventilation Schedule	N/A	N/A
Toilet Exhaust Fans	6 AM – 8 PM	N/A	N/A
Gym Related Exhaust Fans	Ventilation Schedule	Ventilation Schedule	Ventilation Schedule
Babylon Memorial Grade School			
General Exhaust Fans	Ventilation Schedule	N/A	N/A
Toilet Exhaust Fans	6 AM – 8 PM	N/A	N/A
Gym Related Exhaust Fans	Ventilation Schedule	Ventilation Schedule	Ventilation Schedule
Babylon Jr. & High School			
General Exhaust Fans	Ventilation Schedule	N/A	N/A
Toilet Exhaust Fans	6 AM – 8 PM	N/A	N/A
Gym Related Exhaust Fans	Ventilation Schedule	Ventilation Schedule	Ventilation Schedule

7.6.12. General Operating Condition Notes (applies to all)

Notes:

1. Hours and times not designated as occupied or standby are considered unoccupied.
2. Ventilation is only required during occupancy or Ventilation Hours. Outside Air dampers will be shut during non-ventilation Hours or times of unoccupation unless economizing.
3. Units can economize during times other than those listed for the Ventilation Schedule; outside of that schedule, all outside air dampers should be closed.
4. Windows are assumed to be shut unless weather conditions are favorable for economizing, and there would be minimal impact on heating and cooling energy, or the HVAC systems are disabled.
5. Outdoor air ventilation shall be operated at a level not exceeding ASHRAE 62.1-2019 standards for all HVAC equipment in the project.
6. Any use of demand control ventilation (CO2) sensors to control outdoor air will minimize outdoor air (unless economizing) and shall not be set lower than 950ppm unless otherwise indicated in this exhibit or related documents or scope of work.
7. During unoccupied or standby setpoint modes/times, the HVAC fans should be set in "Auto" (i.e., off unless needed to maintain or reach heating or cooling setpoint)
8. For Any HVAC units that serve multiple zones where user temperature control is available, the controls shall be set to limit the heating and cooling bands to +/- 2°F of the values shown in the "Proposed Facility Comfort Setpoints."

9. The Facility Temperature Setpoints for heating and cooling are the upper and lower setpoints, respectively, that should generally be set with temporary or user changes not to exceed +2°F higher in heating mode or -2°F lower in cooling mode.
10. For any facility with a hot water heating loop, the heating hot water loop temperatures and any related heat exchangers shall be reset with heating demand and maintained at a low temperature as feasible while maintaining comfort conditions.
11. Kitchens are used on school days only, not on weekends, evenings, or during the summer.
12. The school year is approximately from September through June, not exceeding 200 days of occupied settings.
13. These general operating hours may vary due to extracurricular activities, special events, occupancy outside of pre-defined hours per this Agreement, holiday schedules, and weather events. It is assumed that up to 110 hours of extracurricular activities requiring occupied settings may occur beyond the above schedule for classrooms and up to 200 hours for Gyms and Auditoriums. HVAC overrides shall be limited to spaces within the facility with after-hours activities.
14. Holidays are scheduled for an unoccupied schedule, which includes but is not limited to the following (the actual day observed may be different than the holiday date):
    a. New Year's Day (January 1).
    b. Martin Luther King, Jr. Day (Third Monday in January).
    c. Washington's Birthday (Third Monday in February).
    d. Memorial Day (Last Monday in May).
    e. Independence Day (July 4).
    f. Labor Day (First Monday in September).
    g. Columbus Day (Second Monday in October).
    h. Veterans Day (November 11).
    i. Thanksgiving Day (Fourth Thursday in November).
    j. Christmas Day (December 25).
15. Holidays will be treated as unoccupied time in the building HVAC control system, with fans cycling to maintain setback/setup temperatures and outdoor air dampers closed unless economizing.
16. For any event that results in a Facility being Unoccupied, the Facility should be put into an unoccupied setpoint mode of operation with the ventilation systems off (i.e., outdoor air dampers closed unless economizing).
17. Summer occupancy is limited to office areas, libraries, gymnasiums, and limited classrooms.
18. It is assumed that no greater than 5% of the school year population will be affected by HVAC operations in occupied mode, limited to populated areas and times.
19. For any facility with more than one fuel source, it is assumed that, in general, the lowest available heating or cooling energy cost to the facility is used, including any system efficiency in applying the energy.
20. Domestic Hot Water (DHW) systems: Unless otherwise stated or specified, Domestic Hot Water (DHW) systems, if capable of an occupied / unoccupied mode such as turning off the circulator pumps during unoccupied times, shall at a minimum be disabled or placed into an unoccupied mode, such as turning off the circulator pump,

during times when the Facility Temperature Setpoint Mode is specified as unoccupied per this document.

21. Exhaust Fan that is controlled by the building automation system or other devices, such as time clocks, and that are not required to operate continuously for safety or code reasons or as otherwise specified in this document are, at a minimum, expected to be disabled or off when the temperature setpoint modes are in unoccupied mode and or during non-ventilation times.

Attachment B3

4.0 Project Benefits Methodology Details

4. M&V Methodology Approach

The M&V Plan developed for this project is designed to detail the methodologies used to verify Measured and Non-Measured Project Benefits for this project's specific IM/ECM, including any related Operational and Maintenance (O&M) cost-related savings. This Agreement includes Measured M&V Option A, Option C, and Non-Measured or Agreed-upon (AU) savings approaches for verifying Measured and Non-Measured Project Benefits related to this project. The following table summarizes the M&V Option(s) to be applied for each IM/ECM.

Any O&M-related savings are included with the specific IM/ECM or in a separate section towards the end of this Attachment. Any related deferred maintenance cost savings or Capital Expenditures Avoided are shown following the O&M-related savings.

Any Operational and Maintenance (O&M) Cost savings for this project are negotiated and agreed upon by ESG and accepted as stipulated by the Owner. There is no need to verify the agreed-upon operational savings further. The operational savings will begin once each ECM has reached substantial completion.

Any Operational and Maintenance (O&M) Cost savings outline the source of the First Guarantee Year agreed upon operational savings as a reduction to the existing maintenance of the appropriate equipment. Savings are agreed to escalate annually throughout the Guarantee Term as outlined in Section 2.2 of Exhibit B. Details of escalation are found in Section 3.6 of Exhibit B. The table(s) show the methodology and assumptions for saving internal labor, material, and contract service.

4.1. M&V Option(s) by Improvement Measure

IM / ECM Number	IM / ECM Description	M&V Option (Electric)	M&V Option (Fuel)	M&V Option (Water / Sewer)
01	LED Lighting – Interior	A	N/A	N/A
02	LED Lighting – Exterior	A	N/A	N/A
03A	Solar PV - Babylon ES	A	N/A	N/A
03B	Solar PV - Grade School	A	N/A	N/A
03C	Solar PV - Jr & HS	A	N/A	N/A
04	Roof Restoration at Grade School	AU	C	N/A
05	Building Envelope Upgrades	A	C	N/A
06	Piping Insulation	N/A	C	N/A
07	Steam Trap Upgrades - Retrofit	N/A	C	N/A
08	Boiler Replacements	N/A	C	N/A
09	Walk-In Cooler/Freezer Controls	AU	N/A	N/A
10	Plug-load Controls	A	N/A	N/A
11	Retro-commissioning	AU	C	N/A
12	Exhaust Fan Control for Air Quality	AU	C	N/A
13A	Building Controls - Boiler Room Central BMS	N/A	C	N/A
13B	Building Controls - AHU Units with DCV	AU	C	N/A

Notes:

1. Unless otherwise noted:
    a. Energy Cost Savings, using the values shown and the utility rates specified in Section 3.2 and escalation specified in Section 3.6, are Guaranteed subject to the terms of Exhibit B and this M&V Plan.

4.2. Lighting Retrofit (IM/ECM-01 & 02)

A thorough and detailed audit of the lighting equipment developed the baseline for this ECM. The audit produced a room-by-room list of existing lighting systems. Since measuring each lighting fixture is unrealistic, a statistical sampling plan was developed. Random sampling is a statistical process of randomly selecting equipment to monitor/characterize a feature of the entire population of similar equipment. The sample size of lighting fixtures measured will follow statistically significant principles to validate savings.

4.2.1. Annual Energy Savings

Facility	Guaranteed Savings (kWh)	Guaranteed Savings (kW)	Initial Project Benefits ($)
Babylon Elementary	65,303	377	$15,244
Babylon Memorial Grade School	56,564	316	$14,288
Babylon Jr. & High School	130,858	627	$28,446
Total	**252,726**	**1,320**	**$57,978**

4.2.2. Energy Savings Methodology

Energy savings result from the reduced wattage consumed by the lighting fixtures. Hours of lighting operation are agreed upon by the Owner and ESG and are presented in "Appendix A1 - Lighting Line-by-Line". In the event of a conflict in the lighting data in this Exhibit and the "Lighting Line by Line," the "Appendix A1 - Lighting Line-by-Line" takes precedence.

Any applicable lighting conditions and assumptions for lighting and lighting controls are agreed upon during the term. Lighting control savings were determined based on coincident lighting ON time and occupancy in select spaces. The potential for lighting control savings was determined based on the above measurements during the study phase. The calculation methodology, input, and assumptions for lighting and lighting controls are agreed upon for the Term.

Measurements are taken on a statistically significant sample of installed light fixtures to validate savings. Manufacturer-specified kW is used for fixture types that are not measured. Pre and post-retrofit kW (or power) measurements and assumptions are applied to the calculations.

LIGHTING

$kWh_{pre} = pre\ (baseline)\ annual\ energy\ use\ in\ kWh$
$kWh_{post} = post\ annual\ energy\ use\ in\ kWh$
$kW_{pre} = pre\ (baseline)\ kW$
$kW_{post} = post\ kW$
$kW_{Bill\_saved} =\ demand\ saving\ impact\ to\ biling\ period\ demand$
$hrs_{pre} = pre\ (baseline)\ operating\ hours$
$hrs_{post} = post\ operating\ hours$
$N_{Pre} = pre\ number\ of\ fixtures$
$N_{Post} = pre\ number\ of\ fixtures$
$DF = Demand\ Diversity\ Factor\ or\ demand\ coincidence\ factor$

$$kWh_{pre} = kW_{pre} * hrs_{pre} * N_{Pre}$$
$$kWh_{post} = kW_{post} * hrs_{post} * N_{Post}$$
$$kW_{saved} \text{ or } (\Delta kW) = kW_{pre} - kW_{post}$$
$$kW_{Bill\ saved} = kW_{saved} * DF$$
$$kWh_{saved} = kWh_{pre} - kWh_{post}$$

4.2.3. Key Parameter(s)

1. Fixture wattage (measured)
2. Hours of operation
3. Quantity of fixtures

4.2.4. Pre-Installation Measurements

1. Lighting power readings (kW) were taken during development of the project on a statistically significant sample of light fixtures. These values have been applied to the energy calculations and lighting line by line. No additional pre-installation measurements are required.

Lighting Pre-Installation Average Measurements

Fixture Type	# Measurements	Expected Watts	Avg. Measured Watts
Recessed 2' X 2' Center-Basket Troffer, (2) 40W 2G11 Biax Tubes	13	72	69.39
Recessed 2' X 4' Troffer, (2) 28W 48" T8 Tubes	12	48	65.08
Recessed 2' X 4' Troffer, (3) 25W 48" T8 Tubes	11	66	65.18
Linear 4' High Bay, (6) 25W 48" T8 Tubes - Hanger Chain - Wire-Guard - Occ Sensor	11	162	158.23
Recessed 2' X 4' Troffer, (2) 25W 48" T8 Tubes	11	43	49.27
Recessed 2' X 4' Troffer, (3) 28W 48" T8 Tubes	11	72	67.55
Linear Tandem 8' Wrap Fixture, (2) 25W 48" T8 Tubes	11	43	63.08
Linear 4' Narrow Wrap Fixture, (1) 28W 48" T8 Tube	11	28	28.99
Recessed 2' X 4' Troffer, (4) 28W 48" T8 Tubes	9	96	88.44

4.2.5. Key Technical Data and Assumptions Used in this Analysis

1. Hours of Use for Lighting are shown in the Lighting Line by Line in "Appendix A1 - Lighting Line by Line".
2. Peak demand occurs during the day, and exterior lighting is off.
3. Exterior lighting does not impact demand and only operates at night.
4. For Exterior lighting, existing use-hours for savings calculations assume dusk to dawn operation.
5. The interactive effect of the lighting with the heating and cooling is assumed to be negligible overall.
6. The possible impact of occupant-added task lighting will not be measured and is considered negligible. Any interactive effect of task lamps will be considered minimal and ignored.
7. Unless otherwise noted, the existing lighting system was considered wholly functional and in new working order to determine energy savings.
8. The configuration and types of lighting at the time of the lighting audit are assumed static and unchanged between the audit and the installation of the new lighting. For the savings guarantee, the lighting configuration at the time of the lighting audit will be considered the preexisting condition, and the kW draw of the lighting fixture at the time of the audit as indicated in the line by line shall be the agreed pre kW value if changed from the time of the audit to the retrofit/replacement by ESG.

9. A Demand Diversity Factor (DF) of 95% was used for interior lighting and 0% for Exterior Lighting.

4.2.6. Operations and Maintenance (O&M Savings)

4.2.6.1. Year 1 Avoided Cost(s):

IM / ECM Description	Annual Savings
Replacement Parts & Materials	$8,847
Labor	$0
Total	**$8,847**

4.2.6.2. Key Technical Data and Assumptions Used in O&M Cost Savings

1. The Lighting Modernization with LED Technology will result in elimination of lamps and ballasts. The upgrade will generate material (repair) savings due to longer burn hours of LED systems and due to third party manufacturer's warranty coverage for new equipment.

4.3. Solar Photovoltaic (PV)

Solar photovoltaic (PV) systems(s) and associated solar production were modeled and developed based on industry standard solar modeling software. The capacity of the Solar PV System(s) will be validated using the described techniques below.

The Solar Photo Voltaic (PV) Systems will be installed at the following Facilities or locations for production of electric energy:

4.3.1. Facilities to Receive Solar PV

Abbreviation	Facility	Address / Location
"BES"	Babylon Elementary	171 Ralph Ave, Babylon NY 11702
"BMGS"	Babylon Memorial Grade School	169 Park Ave, Babylon NY 11702
"BJHS"	Babylon Jr. & High School	50 Railroad Ave, Babylon NY 11702

4.3.2. Initial Benefits

Facility	Initial Guaranteed Solar Production (kWh)	Initial Project Benefits ($)
Babylon Elementary	288,979	$54,213
Babylon Memorial Grade School	317,820	$59,623
Babylon Jr. & High School	664,244	$124,612
Total	1,271,043	**$238,448**

Note: The energy and any applicable demand values shown are for the initial installation without regard to the Annual Solar Capacity Degradation Factor (DF).

4.3.3. Definitions Specific to Solar Photovoltaic (PV) Improvement Measure(s):

Note: The following definitions are specific to this Improvement Measure.

"ASTM" is the abbreviation for American Society for Testing and Materials

"Baseline Solar Weather Data" or "Baseline Solar Project Weather Data" reflects the minimum number of annual hours of sunlight intensity or irradiance necessary to produce the anticipated solar production. This figure is stipulated between the parties and is based upon historically available weather data of documented solar intensity.

"Data Collection Period" or the period of time defined by this document or other related test procedure which records performance and other related data.

"Delivery Point" means the Facilities' delivery point(s) on either side of the Owner's Utility meter where the Solar PV System connects to the existing electrical system serving Owner's Facilities, or into the utility services as designated in Owner's actual interconnection agreement with the Utility.

"Estimated Solar Production" means the modeled and expected production and capacity of the Solar PV System using the Baseline Solar Weather Data when new and before any safety factor (SF) is applied.

"Guaranteed Solar Production" means the Estimated Solar Production (PvSyst Model) with any applicable safety factor (SF) and or Annual Solar Capacity Degradation Factor (DF) applied and typically varies and reduced each year due to the DF.

"Metered Solar Production" means the solar electric production as recorded by the Solar PV System Metering or as otherwise defined herein.

"Metering" or "Metered" refers to the manner in which either a solar, or other generation device's electricity delivered to the Owner's Facilities shall be measured – by a monitoring system installed by ESG or others as part of the System(s).

"Net Metering" is a billing arrangement where customers who produce their own electricity can receive a credit on their electric utility bills for any extra electricity produced by the customer that flows back onto the electric utility's distribution system.

"Normalization" or "Normalized" means adjustments based on weather or other factors to account for variances as defined in this section.

"Plane of Array" or "POA" means the tilt and azimuth angle of the solar module(s).

"Reporting Conditions" or "RC" is an agreed-upon set of conditions including the plane-of-array irradiance, ambient temperature, and wind speed conditions to which photovoltaic systems performance are reported.

"Solar Production Achieved" or, **"Achieved Solar Production"** or simply, **"Production Achieved"** means the amount of electricity (kWh) and or Demand Offset (kW) produced by the System based upon defined parameters herein following Normalization to the Reporting Conditions (RC).

"Solar Production Cost Savings" is the associated dollar cost savings or compensation associated with Solar Production Achieved and is determined as defined herein.

"System(s)" or **"PV System(s)"** or **"Solar PV"** or **"Solar PV System"** means the total functional assembly of the Photovoltaic (PV) panels, electrical wiring, combiner boxes, disconnects, inverters, monitoring devices, etc., that produces electricity.

"WMS" is the abbreviation for weather monitoring station

4.3.4. Cost Savings and or Compensation Methodology

Savings, income, and or other compensation is a result of electric energy production from the Solar Array that reduces or offsets the existing electric energy needed from the utility or is produced and sold to a 3rd party such as a utility or financially incentivized by a 3rd party for the electric production.

4.3.5. Data Collection and Testing Period

ESG will use a data collection period of at least 3 days, which may not be consecutive, to test the performance of the Solar PV System. Weather data from ESG installed Weather Monitoring Station (WMS) (or alternative as described in this document) will be used to compare actual system output to expected output per system design for actual recorded weather attributes for the recorded time interval. For the purposes of output verification, one or more Solar PV Systems will be selected to perform the test. The system(s) will be selected per ESG's discretion and will be considered representative of all Solar PV Systems installed in this project. Testing will be performed during a period at the discretion of ESG. The Solar PV Systems will be fully operational during all hours of the test. ESG may at their discretion reperform testing at any time and may use those test results for the guarantee-related testing and determination of the Solar Production Achieved for the associated Performance Period and remaining Performance Periods.

In the event the Solar PV System at a Facility has multiple modules at different Planes of Array (POA), ESG may test a single module or group of modules which will be considered representative of the whole or apply other methodology to account for the different POAs

4.3.6. Non-Net Meter Installation

The facilities will have the Solar Systems installed on the utility side of the utility electric meter. The energy production will not directly reduce or offset the electric usage of the building as seen by the utility meter serving the facility. The Owner will be compensated by the utility or other 3rd party for the energy produced by the Solar PV System(s). The compensation and associated agreement for compensation is between the Utility and/or 3rd party, and the Owner.

ESG's Scope of Work for the Solar PV System(s) includes verifying the installation of Metering required by the M&V Plan.

The effective utility rate used to determine the Solar Production Cost Savings for the guarantee is agreed to and stipulated between the owner and ESG and is further described in Attachment B1 – 3.1 Utility Baseline Information Details.

4.3.7. Baseline Solar Weather Data

Pre-Installation, a solar simulation program was used to estimate the solar production of the installed Solar PV System(s) using the following Baseline Solar Weather Data:

See "Appendix 7 – Baseline Solar Weather Data" for details.

4.3.8. Data Collection Period Solar Weather Data and PV System Output

Post-installation, the Solar PV System or other data collection method will collect and monitor the generation and output of the solar array (Metered Solar Production). A Weather Monitoring Station (WMS) will be installed as part of the PV System to collect post-installation weather data for the Reporting Conditions (RC). This data will be stored on local hardware for a minimum of 1 month period so it may be downloaded for analysis. This Weather Monitoring Station (WMS) will monitor at least the following:

1. Ambient Temperature
2. Wind Speed
3. Solar Irradiance Plane of Array (POA) of each module tilt and azimuth indicated on PV System specification in the related scope of work or associated attachments.

In the absence of available data from the WMS (at the Solar PV System), the following data sources will be used:

1. WMS system data failure will be corrected and system will be retested including installation of new WMS as needed as feasible.
2. WMS from next closest other installed Solar PV Systems with data that provides reasonable solar weather data for the installed Solar PV System.
3. Next closest weather station with data that provides reasonable weather data for the installed Solar PV System.

Metered Solar Production: Data from the primary meter will be considered the "Metered Solar Production". If data is not available or is corrupted or contains errors, alternative data such as can be obtained from an alternate meter will be used if possible. In the event no Metered Solar Production data is available an alternative solution may be provided by ESG and approved by Owner.

For the Facilities included in this M&V Plan the Owner will assist ESG in obtaining any necessary access to the building control systems or other installed metering and data-acquisition system(s) (DAS) collecting data associated with this M&V Plan throughout the Construction Period and Term, including remote access. Remote access may include but not limited to providing ESG virtual private network (VPN) capabilities to allow remote monitoring and data collection or when appropriate provide access to necessary reports.

4.3.9. Solar Capacity Degradation

The Guaranteed Solar Production will decrease annually per the stipulated Annual Solar Capacity Degradation Factor (DF) as shown below, beginning one year following Substantial Completion of each PV System, the values in the Guaranteed Solar Production reflect the impact of degradation in subsequent years.

Annual Solar Capacity Degradation Factor (DF)	0.5%

4.3.10. Estimated Solar Production

Each Performance Year will have unique expected annual electrical production due to the annual degradation associated with PV panels. The following table(s) presents the projected annual electrical production for each Performance Year including the Annual Solar Capacity Degradation Factor (DF) that has been incorporated in the project cashflow followed by the projected monthly electric production for each month with no Annual Solar Capacity Degradation Factor (DF) applied.

4.3.10.1. Estimated & Guaranteed Solar Production Annual (Energy)

Year	Estimated Solar Production [PVSYST Modeled kWh AC (Pmc)]	Safety Factor (SF)	Estimated Solar Production with SF (Pmc_{SF})	Annual Solar Capacity Deg. Factor (DF)	Guaranteed Solar Production kWh AC (Pmc) (kWh_{GY})
1	1,296,983	98%	1,271,043	0.0%	1,271,043
2	1,296,983	98%	1,271,043	0.5%	1,264,688
3	1,296,983	98%	1,271,043	0.5%	1,258,365
4	1,296,983	98%	1,271,043	0.5%	1,252,073
5	1,296,983	98%	1,271,043	0.5%	1,245,812
6	1,296,983	98%	1,271,043	0.5%	1,239,583
7	1,296,983	98%	1,271,043	0.5%	1,233,386
8	1,296,983	98%	1,271,043	0.5%	1,227,219
9	1,296,983	98%	1,271,043	0.5%	1,221,082
10	1,296,983	98%	1,271,043	0.5%	1,214,977
11	1,296,983	98%	1,271,043	0.5%	1,208,902
12	1,296,983	98%	1,271,043	0.5%	1,202,858
13	1,296,983	98%	1,271,043	0.5%	1,196,843
14	1,296,983	98%	1,271,043	0.5%	1,190,859
15	1,296,983	98%	1,271,043	0.5%	1,184,905
16	1,296,983	98%	1,271,043	0.5%	1,178,980
17	1,296,983	98%	1,271,043	0.5%	1,173,085
18	1,296,983	98%	1,271,043	0.5%	1,167,220
Totals	**23,345,694**	**N/A**	**22,878,780**	**N/A**	**21,931,882**

Note: The guaranteed production will be adjusted by the Annual Solar Capacity Degradation Factor (DF) to align with actual years in service or Performance Year whichever is greater.

4.3.10.2. Estimated & Guaranteed Solar Production Monthly (Energy)

Note: The energy and any applicable demand values shown are for the initial installation without regard to the Annual Solar Capacity Degradation Factor (DF). The guaranteed production will be adjusted by the annual solar degradation factor to align with actual years in service or Performance Year whichever is greater.

4.3.10.2.1. Babylon Elementary School

MONTH	Estimated Solar Production [PVSYST Modeled kWh AC (Pmc)]	Safety Factor (SF)	Estimated Solar Production with SF (Pmc_{SF})	Annual Solar Capacity Deg. Factor (DF)	Guaranteed Solar Production kWh AC (Pmc) (kWh_{GY})
Jan	10,279	98%	10,073	0.0%	10,073
Feb	16,527	98%	16,197	0.0%	16,197
Mar	25,794	98%	25,278	0.0%	25,278
Apr	32,052	98%	31,411	0.0%	31,411
May	35,375	98%	34,668	0.0%	34,668
Jun	36,103	98%	35,381	0.0%	35,381
Jul	36,217	98%	35,492	0.0%	35,492
Aug	34,741	98%	34,047	0.0%	34,047
Sep	22,115	98%	21,673	0.0%	21,673
Oct	18,326	98%	17,959	0.0%	17,959
Nov	15,603	98%	15,291	0.0%	15,291
Dec	11,745	98%	11,510	0.0%	11,510
Totals	**294,877**	**N/A**	**288,979**	**N/A**	**288,979**

4.3.10.2.2. Babylon Memorial Grade School

MONTH	Estimated Solar Production [PVSYST Modeled kWh AC (Pmc)]	Safety Factor (SF)	Estimated Solar Production with SF (Pmc_{SF})	Annual Solar Capacity Deg. Factor (DF)	Guaranteed Solar Production kWh AC (Pmc) (kWh_{GY})
Jan	15,215	98%	14,911	0.0%	14,911
Feb	18,699	98%	18,325	0.0%	18,325
Mar	28,838	98%	28,262	0.0%	28,262
Apr	35,600	98%	34,888	0.0%	34,888
May	25,373	98%	24,865	0.0%	24,865
Jun	39,969	98%	39,169	0.0%	39,169
Jul	40,153	98%	39,350	0.0%	39,350
Aug	38,724	98%	37,950	0.0%	37,950
Sep	31,795	98%	31,159	0.0%	31,159
Oct	18,619	98%	18,247	0.0%	18,247
Nov	17,928	98%	17,569	0.0%	17,569
Dec	13,393	98%	13,125	0.0%	13,125
Totals	**324,306**	N/A	**317,820**	**N/A**	**317,820**

4.3.10.2.3. Babylon Jr. & High School

MONTH	Estimated Solar Production [PVSYST Modeled kWh AC (Pmc)]	Safety Factor (SF)	Estimated Solar Production with SF (Pmc_{SF})	Annual Solar Capacity Deg. Factor (DF)	Guaranteed Solar Production kWh AC (Pmc) (kWh_{GY})
Jan	31,551	98%	30,920	0.0%	30,920
Feb	38,932	98%	38,153	0.0%	38,153
Mar	60,612	98%	59,400	0.0%	59,400
Apr	74,449	98%	72,960	0.0%	72,960
May	53,631	98%	52,559	0.0%	52,559
Jun	83,821	98%	82,145	0.0%	82,145
Jul	82,900	98%	81,242	0.0%	81,242
Aug	81,437	98%	79,808	0.0%	79,808
Sep	66,837	98%	65,500	0.0%	65,500
Oct	38,873	98%	38,095	0.0%	38,095
Nov	37,031	98%	36,291	0.0%	36,291
Dec	27,727	98%	27,172	0.0%	27,172
Totals	**677,800**	**N/A**	**664,244**	**N/A**	**664,244**

4.3.11. Normalization or Normalized Solar Production

To account for variances in the actual daylight (Solar Irradiance) and other weather attributes relative to the Baseline Solar Weather Data used for modeling a normalization procedure is necessary for proper evaluation of PV System performance. The Metered Solar Production is compared to a predicted model for the Reporting Conditions. This is a comparison of what the expected PV System solar production should be relative to the actual Metered Solar Production during the Reporting Period at Reporting Conditions.

4.3.12. Solar Production

ESG will perform an analysis to compare the Metered Solar Production to the Estimated Solar Production normalized to the recorded Reporting Conditions (RC), based on the Solar Weather Data as obtained from the WMS, or other obtained solar and weather data.

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4.3.13. Steps for Solar Production Determination, Data Normalization, and Comparison (ASTM Methodology)

1. A model is generated (using solar design software systems such as PV Syst. for the designed solar array. The model outputs the following and a safety factor is applied to the modeled photovoltaic system.
    a. Modeled photovoltaic system power (Watts), P_{mc}
    b. Plane of array (POA) irradiance per model (W/m^2), POA_{PVSyst}
    c. Ambient Temperature, T_{a_PvSyst}
    d. Wind Speed, V_{Pv_Syst}
2. American Society for Testing and Materials (ASTM) Model is created and the coefficient of the ASTM Model are determined. The Calculation Tolerance (CT) of the ASTM model as compared to the solar design software model (Estimated Solar Production) is determined (to ensure model validity).
3. Values are measured under Reporting Conditions (RC)
    a. The Weather Monitoring Station (WMS) and or Weather Station(s) and Submeter(s) recorded real data at reporting conditions (RC)
        i. Metered Solar Production photovoltaic system power (Watts), P_{RC}
        ii. Plane of array (POA) irradiance for RC (W/m^2), POA_{RC} or E_{RC}
        iii. Ambient Temperature, T_{a_RC}
        iv. Wind Speed, V_{RC}
4. The recorded values from the Reporting Conditions (RC) are applied to calculate the projected performance using ASTM modeling for the Reporting Conditions (RC).
5. Measured Performance of the Array during RC is compared to the modeled ASTM performance during RC using the original coefficients from step 2 for ASTM modeling of RC.
    a. e.g. The Array produced X based on the metering and the ASTM model predicted Y for same RC during the Data Collection Period.
    b. This comparison or measured ratio of performance (MRP) is the measured system performance at RC relative to the ASTM modeled system performance at RC is used.
    c. This measured ratio of performance (MRP) at RC is used to establish the percentage of production achieved above or below modeled (Z) where Z = MRP-1.
6. The Percentage of Achieved Production above or below (Z) under the Reporting Conditions (RC) is applied to the Guaranteed Solar Production (kWh_{GY}) using a Solar Production Adjustment factor (AF) to account for any performance above or below the guaranteed performance and calculation tolerance (CT).
    a. If within the +/- 3.5 % or model Calculation Tolerance (CT) error, whichever is greater, the guarantee is considered to be met. If outside of the greater of those values, then an adjust will be made per this document using the AF.

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COLLECTED DATA TO THE PERFORMANCE EQUATION

Step 1 (PVSyst Data)
A model is created using PVSyst program or other similar program

$PVSyst = data\ per\ PVSyst\ or\ other\ similar\ modeling\ software$
$mc = model\ conditions\ per\ PVSyst\ modeling\ software$
$POA_{PVSyst} = plane\ of\ array\ (POA)\ irradiance\ per\ PVSyst\ model, (W/m^2)$
$v_{PVSyst} = PVSyst\ modeling\ software\ wind\ speed, (m/s)$
$Pmc = PVsyst\ modeled\ photovoltaci\ system\ power, ac\ or\ dc, (W)$
$Pmc_{SF} = PVsyst\ modeled\ photovoltaic\ sytem\ power\ with\ safety\ factor\ (SF)\ applied, ac\ or\ dc, (W)$
$SF = safety\ factor$

$$Pmc_{SF} = Pmc * SF$$

Step 2 (ASTM Regression Modeling)
Regression analysis model is created, coefficients determined, accuracy and modeling error (calculation tolerance, CT) is determined:

$CT = calculation\ tollarance, comparison\ ASTM\ modeled\ photovoltaci\ system\ power\ to\ PVsyst\ model.$
$P_{ASTM} = photovolatic\ system\ power, ac\ or\ dc, (W)$
$a_1, a_2, a_3, a_4 = linear\ regression\ coefficient, arbitrary$
$a, b, c, d = special\ mismatch\ factor\ calibration\ constants, arbitrary$
$Pmc_{SF\_Clipped} = Pmc_{SF}\ with\ \max\ value\ limited\ to\ inverter\ output\ and\ minimum\ of\ zero$
$E = plane\ of\ array\ (POA)\ irradiance\ ASTM\ model, (W/m^2)$

$$E = POA_{PVSyst}$$

The following Regression Model is created using PVSyst Data:

$$P_{ASTM} = b + E(a_1 + a_2 * E + a_3 * Ta_{PVsyst} + a_4 * v_{PVSyst})$$

$$CT = \frac{P_{ASTM}}{P_{mc}}$$

Step 3 Reporting Conditions (Measured Values)
The following parameters are recorded under the reporting conditions (RC):

$P_{RC} = photovolatic\ system\ power\ at\ RC, ac\ or\ dc, (W)$ *(Metered Solar Production)*
$E_{RC} = POA_{RC} = plane\ of\ array\ irradiance\ at\ RC\ rating, (W/m^2)$
$v_{RC} = reporting\ conditions\ (RC)\ rating\ wind\ speed, (m/s)$
$Ta_{RC} = reporting\ conditions\ (RC)\ ambient\ temperature, (°C)$

Step 4
Using the coefficients from step 2 the calculated projected performance using ASTM modeling is determined for the reporting conditions (RC).

$P_{RC\_Modeled} = regression\ modeled\ photovolatic\ system\ power\ at\ RC, ac\ or\ dc, (W)$

$$P_{RC} = b + E_{RC}(a_1 + a_2 * E_{RC} + a_3 * T_a + a_4 * v_{RC})$$
$$P_{RC} = b + (a_1 * E_{RC}) + (a_2 * E_{RC} * E_{RC}) + (a_3 * E_{RC} * T_a) + (a_4 * E_{RC} * v_{RC})$$

Step 5

The performance at reporting conditions (RC) is compared to projected ASTM modeled performance at RC.

MRP = measured ratio of performance, ratio of measured system performance at RC (Metered Solar Production) to ASTM modeled system performance at RC, (%)

$$MRP = \frac{\sum P_{RC}}{\sum P_{RC\_Modeled}} = \frac{\sum Metered\ Solar\ Production\ at\ RC}{\sum ASTM\ model\ production\ at\ RC}$$

Step 6

The performance comparison or measured ratio of performance (MRP) and Solar Production Adjustment Factor (AF) is applied Guaranteed Solar Production to determine the Solar Production Achieved which is compared to determine the amount above or below the guarantee that is achieved.

AF = Solar Production Adjustment Factor used to ratio MRP to guaranteed year performance or kWh_{GY}
kWh_{GY} = Gurantee Year kWh produced by PV System (kWh), per Estimated & Guaranteed Solar Production Table.
kWh_{SPA_Energy} = Solar Production Energy Acheived (kWh)
Z = Percent of Production Achieved above or below modeled, (%)

$$Z = MRP - 1$$

If the percent of production achieved (P_{RC}) above or below the ASTM modeled at RC (Z) falls within the calculation tolerance (CT) or is less than or equal to +/- 3.5% then the Solar Production Adjustment Factor is 1 and the guarantee is meet. If the percent of production achieved (P_{RC}) above or below the ASTM modeled at RC falls outside of calculation tolerance, then the AF is determined as indicated below and used to determine the Solar Production Achieved.

Note: If the absolute value of Z is <= 3.5% or the absolute value of CT then no adjustment is taken and then the Solar Production Adjustment Factor (AF) = 1

If $|Z|$ is $\leq$ greater of $|(CT)|$ or 3.5% then

$$AF = 1$$

otherwise,

IF $Z < 0$ then

$$AF = Z + CT$$

IF $Z > 0$ then

$$AF = Z - CT$$

$$kWh_{SPA\_Energy} = kWh_{GY} * AF$$

kWh_{GY} = *The guranteed kWh production for that guarnatee or Performanc Year*
kWh_{SPA_Energy} = *Aheived kWH production acheived after normalzied for Reporting conditions*

4.3.14. Key Parameter(s)

1. Generation and output of Solar Array (Metered Solar Production)
2. Ambient Temperature
3. Wind Speed
4. Solar Irradiance Plane of Array (POA) of each module tilt and azimuth indicated on PV System specification in the related scope of work or associated attachments.

4.3.15. Key Technical Data and Assumptions Used in this Analysis

1. This test method assumes that the solar cell temperature is directly influenced by ambient temperature and wind speed.
2. Annual Solar Capacity Degradation Factor (DF)

4.3.16. Solar Production Achieved for Non-Measured Performance Years

The Solar Production Achieved for the remaining years will be determined by multiplying Solar Production Adjustment Factor (AF) against the Guaranteed Solar Production. In the event ESG performs additional testing the AF maybe adjusted to the new AF value.

Solar Production Achieved Non-Measured Performance Years

Solar Production Achieved for non-measured years are calculated using the following methodology:

$$kWh_{SPA\_Energy} = kWh_{GY} * AF$$

4.3.17. Operational and Maintenance Responsibilities

The M&V protocol for the Solar PV ECM/IM is based on electric meter, Weather Monitoring Station (WMS) and related pyranometer measurements. Since the electric meter(s), WMS, data-acquisition system(s) (DAS), and associated System control platform are vital to the M&V process, operational, and maintenance responsibilities are discussed next.

Upon execution of Substantial Completion of the Solar PV ECM/IM at a Facility, the operation of the PV System, including all installed meters, WMS, DAS, and associated System control platform that enables any applicable web accessibility, is the responsibility of the Owner as ESG has no operational responsibility. In addition, the areas surrounding each Solar PV installation must be kept free of shade from structures, trees, or vegetation for the

duration of the Guarantee Period. Failure to do so will result in adjustments to account for the loss of Solar Production.

During the ESG warranty period, if an Owner-owned electric meter(s) pertinent to solar PV systems WMS, or DAS fails or if the PV System electric-generation meter data is impacted due to poor workmanship or defective material, then it is the Owner's obligation to provide timely notification of such issues to ESG. Owner shall read meters and perform complete Systems check on a weekly basis and keep such records for examination by ESG. Upon such notification, it is ESG's responsibility to remedy the deficiency.

After the warranty period, if an Owner-owned electric meter, WMS, or DAS fails or if the PV System electric-generation data is damaged or malfunctions, then it is the Owner's responsibility to identify and remedy the deficiency, such that the data from the PV System meter is available to ESG for the M&V report. Any applicable subscription costs associated with the data-acquisition system (DAS) have been included in the project for the first year only. Any subsequent fees are the responsibility of the Owner.

4.3.18. Activities and Events Adversely Impacting Solar PV System Performance

Owner is expected to maintain proper working order of the installed Solar PV Systems. ESG shall not be responsible for negative impacts to Solar PV Production or Capacity beyond its reasonable control and that result directly from: (1) actions by the Owner, their selected contractor, or the Utility, or (2) other actions or activities beyond the reasonable control of ESG including, but not limited to,

a. Modifications to the Facilities, including the building structure, vegetation, or real estate that cause significant shading over the System;
b. Material changes to the System made without the consent of ESG;
c. Material changes to the stipulated Baseline Solar Weather Data identified within this M&V Plan;
d. Guaranteed Year Solar Weather Data which represents a decrease from the Baseline Solar Weather Data that would impact Solar Production.
e. Improper maintenance that causes water, soil, snow, ice or other material to cover the System;
f. Failure to exercise proper operation and basic care and maintenance of the System;
g. Failure to adhere to operating and maintenance responsibilities as defined by the equipment manufacturers' System maintenance specifications;
h. Owner delays in signing the interconnection agreement(s) with the utility;
i. A Force Majeure event or circumstance that results in physical damage to the System or associated systems, including utility owned, which prevent full or proper operation;
j. Failure of an Owner-owned electric meter to perform properly or accurately due to lack of maintenance or repair, neither of which are ESG's responsibility after Final Acceptance Date and/or Acceptance of Installation.
k. Changes in atmospheric conditions that impact the System performance.

In addition, the Owner agrees to:

l. Not make any changes to the System's controls program that would adversely affect the system's performance without prior notice to ESG.
m. Provide access for ESG to adjust the System to ensure optimal operation and maximum Solar Production.
n. Execute the interconnection agreement(s) with the utility in a timely manner.
o. For the Facilities included in this M&V Plan the Owner will assist ESG in obtaining any necessary access to the building control systems or other installed metering and data collecting systems associated with this M&V Plan throughout the Construction Period and Term, including remote access. Remote access may include but not limited to providing ESG virtual private network (VPN) capabilities to allow remote monitoring and data collection or when appropriate provide access to necessary reports.

If a condition identified within this Section occurs during the Guarantee Period, ESG shall be entitled to reasonably reduce its Guarantee and/or make additional adjustments to the Baseline; in order to account for such occurrences.

4.4. Roof Restoration (IM/ECM-04)

The baseline for this ECM was developed by a thorough and detailed audit of the roofing systems. The audit determined the surface area, and estimation of the existing heating and cooling properties of the roof such as insulation, and reflectivity, and where improvements can be made.

4.4.1. Annual Energy Savings

Facility	Guaranteed Savings (kWh)	Guaranteed Savings (kW)	Initial Project Benefits ($)
Babylon Memorial Grade School	2,515	-	$382
Total	**2,515**	**-**	**$382**

4.4.2. Energy Savings Methodology

Energy savings are a result of an improvement in the building envelope and the reduction in heat transfer through roof area between the pre-field survey and the as-built documentation based on the surface area of insulation or changes in reflective properties. The annual hours per year the heat transfer occurs and heating & Cooling system efficiency are agreed upon by the Owner and ESG.

Roof Restoration Savings (Insulation & Reflectivity)

A_{Roof} = *Total impacted roofing area,* (ft^2)
A_{Wall} = *Exterior wall area,* (ft^2)
A_{Cool} = *roofing area where cooling savings is applied,* (ft^2)
A_{heat} = *roofing area where heating penalty is applied,* (ft^2)
CF_{Cool} = *Cooling Factor,* $(kWh/1000\ ft^2)$
HF_{Heat} = *Heating Factor,* $(MMBtu/1000\ ft^2)$
$AC\%$ = *percentage of related facility that is mechanically cooled* (%)
$\%Shade$ = *percentage of related roof that is shaded by such as by solar panels* (%)
FOS = *Factor of safety*

Reflective Savings:

$$A_{Cool} = A_{Roof} * (1 - \%Shade) * \%AC$$

$$A_{Heat} = A_{Roof} * (1 - \%Shade)$$

$$kWh_{Saved-Reflected} = \frac{A_{Cool}}{1000} * CF_{Cool} * FOS_{Cool}$$

$$Fuel_{Penalty} = \frac{A_{Heat}}{1000} * HF_{Heat} * FOS_{Heat}$$

Insulation Savings:
A_{Roof} = *Total impacted roofing area,* (ft^2)
A_{Wall} = *Exterior wall area,* (ft^2)
ΔT = *differential temperature across insulation,* $(°F)$
R_{Roof} = *roof insulation value*
R_{Wall} = *wall insulation value*

$Q = annual\ heat\ loss\ or\ transfer\ across\ area$

$$UA = \frac{1}{R_{Roof}} A_{Roof} + \frac{1}{R_{Wall}} A_{Wall}$$

$$Q = UA * \Delta T$$

$$Q_{Saved} = Q_{Pre} - Q_{Post}$$

Total Savings:

$$kWh_{Saved\_Total} = kWh_{Saved\_Reflected} + kWh_{Saved\_Insulation}$$

$$Fuel_{Saved\_Total} = Fuel_{Insulation} - Fuel_{Penalty}$$

Note: Fuel in this context is any fuels (natural gas, fuel oil, propane etc.) used in the facility as part of HVAC systems that would be impacted. Calculations shown are a simplification, the actual calculation using bin hour weather data and calculates the values over multiple bins and periods.

4.4.3. Key Parameter(s)

4. Surface Area, Total
5. Surface Area, solar exposed (i.e., not shaded from installation of solar panels)
6. Insulation R-value
7. Hours per year heat loss occurs
8. Solar Weather
9. Ambient Air Temperature
10. Cooling savings factor (kWh/1000 ft²)
11. Heating penalty from increased solar reflective surface (MMBtu/1000 ft²)

4.4.4. Key Technical Data and Assumptions Used in this Analysis

1. Existing average Roof R-value
2. Post Roof R-value
3. Existing Roof Reflectivity
4. Post Roof Reflectivity
5. Percentage of facility that is mechanically cooled
6. Heating factor
7. Cooling factor

4.4.5. Operations and Maintenance (O&M Savings)

4.4.5.1. Year 1 Avoided Cost(s):

IM / ECM Description	Annual Savings
Replacement Parts & Materials	$8,500
Labor	$0
Total	**$8,500**

4.4.5.2. Key Technical Data and Assumptions Used in O&M Cost Savings

1. The roof coating will reduce ongoing maintenance, building damage caused from roof leaks and repair costs.

4.5. Building Envelope Upgrades (IM/ECM-05)

The baseline for this ECM was developed by a field survey of the existing the building envelopes which include doors, windows, insulation, air barriers, and air gaps. The survey determined where improvements to the envelope can be made.

Existing envelope deficiencies are documented based on collected field data to provide a baseline for evaluation the effectiveness of the air sealing and barrier systems and insulation. The areas identified for envelope and or weatherization improvements will be verified to be complete through one-time visual inspection and as-built documentation. The As-Built measurement and documentation of the area sealed or improved will be compared to the audit area to apply to savings calculations.

4.5.1. Annual Energy Savings

Facility	Guaranteed Savings (kWh)	Guaranteed Savings (kW)	Initial Project Benefits ($)
Babylon Elementary	1,712	-	$269
Babylon Memorial Grade School	1,404	-	$213
Babylon Jr. & High School	2,143	-	$340
Total	5,259	-	$822

4.5.1.1. Energy Savings Methodology

The energy savings derived from this measure are a result of the heating and cooling systems not having to work as hard to achieve the desired environmental conditions. The amount of savings is dependent on the existing building conditions and the amount of air leakage under the current operating conditions and associated R-values of insulation.

Energy savings will be based on the ASHRAE crack method for air infiltration measures. If the commissioning process reveals any variation in the as-built conditions, then savings will be adjusted. Determination of current air leakage rates is based on many factors, including:

- Linear feet of cracks
- Square feet of openings
- Stack coefficient
- Shelter / Shield class
- Average wind speed
- Heating or cooling set point(s)
- Weather Conditions

BUILDING ENVELOPE / WEATHERIZATION IMPROVEMENTS

Savings are calculated using the following methodology:

Heat loss per hour: $\dot{q} = 1.08 \times Q \times \Delta T$
Where Q represents the airflow in cubic feet per minute (CFM) and is calculated in the following manner:

$$Q = A_{crack}\sqrt{C_s \Delta T + C_w V^2}$$

In this equation, A_{crack} represents the crack area in square inches to be reduced. The other values in the equation are standard for these buildings and are based on shelter class, height, and local wind speed.

C_W = wind coefficient
V = wind speed
C_S = stack coefficient
ΔT = differential temperature = $T_{OUTSIDE} - T_{INSIDE}$

4.5.1.2. Key Parameter(s)

1. Area (A_{crack}), based on measured Linear Feet of Crack Length
2. Cw = wind coefficient
3. V = wind speed
4. CS = stack coefficient
5. SC = Shelter / Shield Class
6. Typical Meteorological Year (TMY) Data
7. Average Heating system efficiency
8. Average Cooling System efficiency \

4.3.1.3. Pre-Installation Measurements

The existing building envelope deficiencies and or linear feet of crack length and or area are documented in the scope of work building envelope line by line and related calculations.

4.3.1.4. Key Technical Data and Assumptions Used in this Analysis

1. Cooling system efficiency per the calculation
2. Heating system efficiency per the calculation
3. Average wind speed
4. Stories above grade
5. Local Shielding class
6. Weather Data
7. The following tables show the source of the Stack Coefficient (Cs), Wind Coefficient (Cw), and Shelter/Shield Class (SC):

Stack Coefficient (Cs)

# Stories	Stack Coefficient
1	0.015
2	0.0299
3	0.0449
4	0.06283
5	0.07858
6	0.09433
7	0.11008
8	0.12583
9	0.114158
10	0.15733

Wind Coefficient Table (Cw)

Shield Class (SC) --> # Stories (below)	1	2	3	4	5
1	0.0119	0.0092	0.0065	0.0039	0.0012
2	0.0157	0.0121	0.0086	0.0051	0.0016
3	0.0184	0.0143	0.0101	0.006	0.0018
4	0.0218	0.017	0.012	0.0071	0.0021
5	0.0251	0.0195	0.0138	0.0082	0.0024
6	0.0283	0.0221	0.0156	0.0092	0.0027
7	0.0316	0.0246	0.0174	0.0103	0.003
8	0.0348	0.0272	0.0192	0.0113	0.0033
9	0.0381	0.0297	0.021	0.0124	0.0036
10	0.0413	0.0323	0.0228	0.0134	0.0039

Shelter / Shield Class (SC)

1	No obstruction or local shielding
2	Typical shelter for an isolated rural building
3	Typical shelter caused by other building across street from building under study
4	Typical shelter for urban buildings on large lots where sheltering obstacle are more than one building height away
5	Typical shelter produced by buildings or structures immediately adjacent

4.6. Boiler Replacements (ECM/IM-08)

The baseline for this ECM was developed by a thorough and detailed audit of the boiler systems.

4.6.1. Operations and Maintenance (O&M Savings)

4.6.1.1. Year 1 Avoided Cost(s):

IM / ECM Description	Annual Savings
Replacement Parts & Materials	$17,000
Labor	$0
Total	**$17,000**

4.6.1.2. Key Technical Data and Assumptions Used in O&M Cost Savings

1. O&M Savings for Boiler Replacement is based on eliminating reactive maintenance on boilers that are currently beyond their useful lives and being replaced.

4.7. Walk-In Cooler/Freezer Controls (IM/ECM-09)

The baseline for this ECM was developed by a thorough and detailed audit of the Walk-In Freezer(s) and or Cooler(s).

The audit produced a room-by-room list of existing lighting systems. Since it is unrealistic to measure each lighting fixture, a statistical sampling plan was developed. Random sampling is a statistical process of randomly selecting equipment to monitor/characterize a feature of the entire population of similar equipment. The sample size of lighting fixtures measured will follow statistically significant principals to validate savings.

4.7.1. Annual Energy Savings

Facility	Guaranteed Savings (kWh)	Guaranteed Savings (kW)	Initial Project Benefits ($)
Babylon Elementary	3,259	-	$511
Babylon Jr. & High School	3,259	-	$517
Total	**6,518**	**-**	**$1,029**

4.7.2. Energy Savings Methodology

Evaporator Fan - Energy savings is from the installation of more efficient evaporator fan motors on select units, evaporator fan reduced run hours and associated savings as a result of less heat being introduced into the walk-in.

WALK-IN BOX REFRIGERATION CONTROLS

$kWh_{Saved-Total} = total\ annual\ energy\ saved\ \ (kWh)$
$kWh_{Saved-EF} = annual\ evaporator\ fan\ energy\ saved\ \ (kWh)$
$kWh_{Saved-RH} = annual\ energy\ saved\ from\ reduced\ evaporator\ fan\ heat\ (kWh)$
$kWh_{Saved-ECMMotor} = annual\ energy\ saved\ by\ converting\ to\ ECM\ motors\ (kWh)$
$Amp_{EF} = nameplate\ Amps\ of\ evaporator\ fan$
$Volt_{EF} = nameplate\ Volts\ of\ evaporator\ fan$
$Phase_{EF} = phase\ of\ evaporator\ fan$
$PF_{EF} = evaporator\ fan\ motor\ power\ factor$
$hrs_{Annual-OP} = annual\ operating\ hours$
$COP_{EF} = Average\ Fan\ motor\ Coefficient\ of\ Performance$
$\%MLR = percent\ motor\ load\ reduction\ by\ converting\ to\ ECM\ motors$
$\sqrt{phase} = is\ based\ on\ single\ (1) or\ three\ phase (1.732)\ motor$

Evaporator Fan Savings

$$kW_{EF} = \frac{Amp_{EF}\ x\ Volts_{EF}\ x\ \sqrt{phase}}{1000}\ x\ PF_{EF}$$

$$kWh_{Saved\_EF} = kW_{EF}\ x\ hrs_{Annual\_OP}\ x\ [hrs_{Annual-OP} - (1.16\ x\ 4072)]$$

$$kWh_{Saved\_RH} = \frac{kWh_{Saved\_EF}}{COP_{EF}}$$

ECM Motor Savings

$$kWh_{ECMMotorSave} = [kW_{EF}\, x\, (hrs_{Annual-OP}) - (hrs_{Annual-OP} - (1.16\ x\ 4072))]\, x\, \%MLR$$

$$kWh_{ECMMotorCooling} = \frac{kWh_{ECMMotorEnergy}}{COP_{EF}}$$

$$kWh_{Saved-ECMMotor} = kWh_{ECMMotorSave} + kWh_{ECMMotorCooling}$$

Total Savings

$$kWh_{Saved-Total} = kWh_{Saved-EF} + kWh_{Saved-RH} + kWh_{Saved-ECMMotor}$$

4.7.3. Key Parameter(s)

1. Evaporator fan motor Wattage
2. Evaporator fan motor operating hours
3. Average Fan motor coefficient of performance
4. Percent Motor Load Reduction by converting to ECM motors

4.7.4. Key Technical Data and Assumptions Used in this Analysis

1. Fan Motor Average Coefficient of Performance
2. Percent Motor Load Reduction
3. Existing evaporator fan motor run hours
4. Existing walk-in cooler(s) and freezer(s) evaporator fans run continuously.

4.8. Plug Load Controls (IM/ECM-10)

The baseline for this ECM was developed by a thorough and detailed audit of the plug load equipment. The audit produced a room-by-room list of existing plug load devices.

ESG shall collect data from the Plug Load Control System prior to and after the implementation of the power management strategies. Savings are from the reduction of hours of time when controlled devices are in an "On" state or other state including off state that continues to draw parasitic or vampire loads that exist even when equipment is turned off. The devices and software will be used to measure and record the pre (baseline) and post retrofit energy consumptions which, in turn, will be compared to arrive at total annual energy saved.

Plug load monitoring devices will be installed with no schedules for the first 2-4 weeks to establish a pre (baseline) power (kWh) usage.

4.8.1. Annual Energy Savings

Facility	Guaranteed Savings (kWh)	Guaranteed Savings (kW)	Initial Project Benefits ($)
Babylon Elementary	7,419	-	$1,164
Babylon Memorial Grade School	6,799	-	$1,033
Babylon Jr. & High School	19,781	-	$3,140
Total	**33,998**	**-**	**$5,336**

4.8.2. Energy Savings Methodology

Energy savings are a result of the difference is power usage between the pre (baseline) usage and the scheduled post (kWh) usage.

PLUG LOAD CONTROLS

Savings calculations are calculated using the following methodology:

$kWh_{pre} = baseline\ annual\ energy\ use\ in\ kWh$
$kWh_{post} = post\ annual\ energy\ use\ in\ kWh$
$W = Average\ measured\ Watts\ per\ interval\ (Watt/interval)$
$PF = power\ factor$
$t_i = time\ interval\ for\ period$
$n = time\ interval\ for\ period$

$$W = Amps * Voltage * PF$$

$$kWh = \sum_{i=1}^{n} (W/1000) * t_i$$

$$kWh_{saved} = kWh_{pre} - kWh_{post}$$

$$\$_{kWh-saved} = kWh_{saved} * \frac{\$}{kWh}$$

Note:

1. *The Average measured Watts per hour "W" is the average of the one min averaged values.*
2. *For measurements of less than one year or 8760 hrs the kWh over that time period will be extrapolated to a year time frame.*

4.8.3. Key Parameter(s)

1. Current (measured)
2. Voltage (measured)
3. Time (measured)
4. Power Factor

4.8.4. Key Technical Data and Assumptions Used in this Analysis

1. Pre and post power factors are assumed equal and a static factor.
2. Power factor is assumed to be 0.98.
3. No demand savings is calculated or assumed.
4. If the client alters the hours the default hours here may be used for calculating savings or adjustments in the case of Facilities and electric accounts being tracked under Option C.
5. Anticipated schedule of operations is agreed upon by the Owner and ESG and is as follows:

Facility	# Hours Scheduled ON per Year: BERT	# Hours Scheduled OFF per Year: BERT
Babylon Elementary	2,420	6,340
Babylon Grade	2,420	6,340
Babylon Jr. & Senior High	2,600	6,160

4.9. Retro-Commissioning (IM/ECM-11)

During the IGA, opportunities to improve energy consumption of HVAC equipment throughout the Facilities were noted. A detailed field survey and related testing will be completed to identify deficiencies with controls, mechanical equipment, schedules, etc. throughout the facility as specified in the related scope of work. This is a systematic process to ensure that the building energy systems perform interactively and efficiently according to the design intent and the current operational needs of the facility. During on-site testing, the qualified personnel conducting the study would immediately make any no/low-cost improvements as identified. Further specifics relating to the extent of repairs or modifications to the system(s) are specified in Exhibit A Scope of Work.

4.9.1. Annual Energy Savings

Facility	Guaranteed Savings (kWh)	Guaranteed Savings (kW)	Initial Project Benefits ($)
Babylon Elementary	7,300	-	$1,145
Babylon Memorial Grade School	7,687	-	$1,168
Babylon Jr. & High School	22,107	-	$3,509
Total	**37,094**	**-**	**$5,822**

4.9.1.1. Energy Savings Methodology

By fixing issues with mechanical equipment, properly running the equipment, and scheduling it based on when the spaces are occupied, energy savings are achieved.

Note: An increase in heating and cooling energy may occur due to the increased air flow caused by properly operating equipment following retro-commissioning. This process may increase outdoor air introduced to the spaces which may need to be heated, humidified, cooled, or dehumidified. Motors and or related fans may also have run hours increased as part of the retro-commissioning.

RETRO-COMMISSIONING

Savings are calculated using the following methodology:

$kWh_{Baseline-Pre} = pre\ (baseline)\ annual\ energy\ use\ in\ kWh\ prior\ to\ savings\ measures$
$kW_{Baseline-Pre} = pre\ (baseline)\ annual\ demand\ use\ in\ kW\ prior\ to\ savings\ measures$
$Fuel_{Baseline-Pre} = pre\ (baseline)\ annual\ energy\ use\ in\ fuels\ prior\ to\ savings\ measures$
$EIF_{Electric} = electric\ energy\ impact\ factor\ (portion\ of\ electric\ energy\ that\ will\ be\ impacted)$
$EIF_{Fuel} = Fuel\ energy\ impact\ factor\ (portion\ of\ fuel\ energy\ that\ will\ be\ impacted)$
$IE_{Electric} = electric\ energy\ that\ can\ be\ impacted\ by\ measure$
$IE_{Fuel} = Fuel\ energy\ that\ can\ be\ impacted\ by\ measure$
$SF_{Electric} = Electric\ Saving\ Factor$
$SF_{Fuel} = Fuel\ Saving\ Factor\ (natural\ gas, propane, fuel\ oil\ etc.)$
$FOS = Factor\ of\ safety$

$$IE_{Electric} = kWh_{Baseline-Pre} * EIF_{Electric}$$

$$IE_{Fuel} = Fuel_{Baseline-Pre} * EIF_{Fuel}$$

$$kWh_{saved} = IE_{Electric} * SF_{Electric} * FOS_{Electric}$$

$$Fuel_{saved} = IE_{Fuel} * SF_{Fuel} * FOS_{Fuel}$$

Note: Fuel in this context is any fuels (natural gas, fuel oil, propane etc.) used in the facility as part of HVAC systems that would be impacted by any operational verification & HVAC tune up, commissioning and or retro-commissioning.

4.9.1.2. Key Parameter(s)

1. Energy Baseline
2. Portion of Energy Baseline that can be impacted
3. Savings Factor

4.9.1.3. Key Technical Data and Assumptions Used in this Analysis

1. The proposed conditions of Section 3.4 will be followed
2. Electric savings factor
3. Fuel savings factor
4. Factor of safety (electric)
5. Factor of safety (fuels)

4.10. Exhaust Fan Controls for Indoor Air Quality (IAQ) (IM/ECM-12)

The baseline for this ECM was developed by a field survey of the existing the building ventilation systems, related fan motors, and their operating patterns.

4.10.1. Annual Energy Savings

Facility	Guaranteed Savings (kWh)	Guaranteed Savings (kW)	Initial Project Benefits ($)
Babylon Elementary	10,532	-	$1,652
Babylon Memorial Grade School	11,551	-	$1,755
Babylon Jr. & High School	7,026	-	$1,115
Total	**29,109**	**-**	**$4,522**

4.10.1.1. Energy Savings Methodology

The energy savings derived from this measure are a result of the reduction in operation of the exhaust fans. This results in a net reduction in outdoor makeup ventilation air and a reduction in heating and cooling energy needed to condition the outdoor makeup ventilation air. Electrical savings are also achieved by a reduction in operating hours of the fan motors and improved motor efficiency of replaced motors (as applicable.)

Exhaust Fan Energy Savings

$\Delta CFM = CFM\ reduction$
$n_{Cool} = Cooling\ efficiency, (kW/ton)$
$n_{Motor} = motor\ efficiency, (kW/ton)$
$\Delta T = differential\ temperature$
$\Delta h = differential\ enthalpy$
$Q_{Env} = Envlope\ loss\ or\ gain, MMBtu$
$Q_{In} = Infiltraion\ loss\ or\ gain, MMBtu$
$Q_{Vent} = Ventilation\ loss\ or\ gain, MMBtu$
$kW_{CV} = constant\ speed\ motor\ demand$
$kW_{VV} = Variable\ speed\ motor\ demand$
$kW_{EF} = Exhaust\ fan\ motor\ demand$
$AIL = Average\ annual\ internal\ load, MMBtu/hr$
$\%IG = Percent\ of\ internal\ gain\ occuring\ during\ occupied\ time, \%$
$HRS_{OCC} = Occupied\ hours$
$HRS_{UN-OCC} = unoccupeid\ hours$
$LF = load\ factor$

hp_{motor} = *motor horse power*

Ventilation Losses (Cooling)

$$Q_{Vent\_Sensible} = 1.08 * \Delta CFM * \Delta T$$

$$Q_{Vent\_Latent} = 4.5 * \Delta CFM * \Delta h$$

$$Q_{Vent} = Q_{Vent\_Sensable} + Q_{Vent\_Latent}$$

Cooling Savings

$$Q_{Total\_Cool} = Q_{Vent}$$

$$kWh_{Cool_{Save}} = Q_{Total\_Cool} * \left[(AIL * HRS_{OCC} * \%IG) + \left(AIL * HRS_{UN-OCC} * (1 - \%IG)\right)\right] * \frac{10^6}{12{,}000} * n_{Cool}$$

Fan Motor Savings

$$kW_{Motor\_CV\_VV\_EF} = hp_{motor} * LF * \frac{0.746}{n_{Motor}}$$

$$kWh_{Save\_Motor} = (kW_{CV} + kW_{VV} * \left(\%MotorSpeed_{@speed\ x}\right)^z) * ((HRS_{OCC} * \%OP_{Occ\_AHU\_UV}) + (HRS_{OCC} * \%OP_{UnOcc\_AHU\_UV}) + (kW_{EF} * (\%OP_{Occ\_EF}) + (HRS_{UNOCC} * \%OP_{UnOcc\_EF}))$$

Note: The above covers the electrical portion of the related energy savings only. The thermal related fuel savings uses a different methodology.

4.10.1.2. Key Parameter(s)

1. Electric power draw of motor(s)
2. Fan Motor Run Hours
3. Typical meteorological year (TMY) weather data

4.10.1.3. Key Technical Data and Assumptions Used in this Analysis

1. Operating hours and percentages
2. Cooling system efficiency per the calculation
3. Motor efficiency
4. Average internal heat gains

4.11. Building Controls - Boiler Room Central BMS (IM/ECM-13A)

Note: O&M savings here are an inclusion of all related project controls.

4.11.1. Operations and Maintenance (O&M Savings)

4.11.1.1. Year 1 Avoided Cost(s):

IM / ECM Description	Annual Savings
Replacement Parts & Materials	$12,750
Labor	$0
Total	**$12,750**

4.11.1.2. Key Technical Data and Assumptions Used in O&M Cost Savings

1. Savings is based on a reduction in required outside maintenance support and repair services.

4.12. Building Controls - AHU Units with Demand Control Ventilation (DCV) (IM/ECM-13B)

The baseline for this ECM was developed by a field survey of the existing building ventilation systems, spaces, and usage patterns of the spaces and related HVAC equipment.

Occupancy and CO_2 sensors will be used to minimize excessive outside air into spaces when not needed based on occupancy. CO_2 will be used for demand control ventilation to match occupancy with needed outside air.

4.12.1. Annual Energy Savings

Facility	Guaranteed Savings (kWh)	Guaranteed Savings (kW)	-Initial Project Benefits ($)
Babylon Elementary	6,015	-	$944
Babylon Memorial Grade School	10,329	-	$1,569
Babylon Jr. & High School	8,823	-	$1,400
Total	**25,167**	**-**	**$3,913**

4.12.2. Energy Savings Methodology

Energy savings are the result of a reduction in outdoor ventilation air and a reduction in heating and cooling energy needed to condition the outdoor makeup ventilation air.

DEMAND CONTROL VENTILATION

Savings calculations are calculated using the following methodology:

Demand Control Ventilation (reduction in outdoor air / ventilation air treatment and conditioning)

$CFM_{OA} = Cubic\ feet\ per\ minute\ of\ outdoor\ ventilation\ air$
$CFM_{OA-Min} = Minium\ Outdoor\ Air\ for\ space\ square\ footage\ (assume\ no\ persons)(CFM)$
$Ra = Outdoor\ air\ flow\ rate\ required\ per\ unit\ area\ (\frac{CFM_{OA}}{ft^2})$
$Az = Zone\ floor\ area:\ occupiable\ floor\ area\ of\ the\ ventiliation\ zone\ (ft^2)$
$RP = Outdoor\ air\ flow\ rate\ required\ per\ person\ (\frac{CFM_{OA}}{person})$
$PZ = Zone\ population:\ number\ of\ people\ in\ the\ ventilation\ zone\ during\ typical\ use$
$V_{bz} = Breathing\ zone\ air\ flow\ (CFM_{OA})$

$$CFM_{OA-Min} = (Ra * Az)$$

$$V_{bz} = (PR * PZ) + (Ra * Az)$$

Cooling Energy Savings (from reduction in treated outdoor air)

$\eta_{sys-AC} = cooling\ system\ efficiency$
$\Delta CFM = CFM\ reduction$
$\Delta T = differential\ temperature$
$\Delta h = differential\ enthalpy$
$Q_{Env} = Envlope\ loss\ or\ gain, MMBtu$
$Q_{In} = Infiltraion\ loss\ or\ gain, MMBtu$
$Q_{Vent} = Ventilation\ loss\ or\ gain, MMBtu$
$AIL = Average\ annual\ internal\ load, MMBtu/hr$
$\%IG = Percent\ of\ internal\ gain\ occuring\ during\ occupied\ time, \%$
$HRS_{OCC} = Occupied\ hours$
$HRS_{UN-OCC} = unoccupeid\ hours$

Ventilation Losses (Cooling)

$$Q_{Vent\_Sensible} = 1.08 * \Delta CFM * \Delta T$$

$$Q_{Vent\_Latent} = 4.5 * \Delta CFM * \Delta h$$

$$Q_{Vent} = Q_{Vent\_Sensable} + Q_{Vent\_Latent}$$

Cooling Savings

$$Q_{Total\_Cool} = Q_{Vent}$$

$$kWh_{Cool_{Save}} = Q_{Total\_Cool} * \left[(AIL * HRS_{OCC} * \%IG) + \left(AIL * HRS_{UN-OCC} * (1 - \%IG)\right)\right] * \frac{10^6}{12{,}000} * n_{Cool}$$

4.12.3. Key Parameter(s)

1. Square Footage of Area
2. Maximum person capacity of space
3. Percent of ventilation air provided by air handling unit (AHU)
4. Existing AHU air flow rate or CFM
5. Required space ventilation at zero occupancy CFM
6. Percent time space is occupied
7. Typical meteorological year (TMY) weather data

4.12.4. Key Technical Data and Assumptions Used in this Analysis

1. Operating hours and percentages
2. Cooling system efficiency per the calculation
3. Maximum person capacity of spaces per calculation
4. Percent of ventilation air provided by air handling unit (AHU) per calculations
5. Existing outdoor air ventilation rates during occupancy
6. Space square footage
7. Owner will not disable, bypass, or override the control systems.

Attachment B4
6.3.8 Rebate and Incentives Details

6.3.8. Rebate and Incentives Details

6.3.8.1. Inflation Reduction Act's Clean Energy Tax Incentives

ESG will assist in applying for applicable incentives offered through the Inflation Reduction Act of 2022. This includes submitting application forms and data on behalf of the Owner and following up with the program administrators to answer any questions or provide additional information.

Note: Incentives are not guaranteed, and ESG is not responsible for delays in the implementation schedule due to interruptions in incentive approval.

6.3.8.1.1. The following summary is the estimated tax Incentives used in financial modeling for the Solar Photovoltaic Systems, with the rightmost column showing the total estimated investment tax credit (ITC):

Rules associated with the ITC are still pending so the assumptions in the table below represent ESG's good faith effort of the potential credit that the Owner can expect to receive. ESG will continue to refine its assumptions as additional information is available.

INFLATION REDUCTION ACT 2022 SOLAR TAX INCENTIVES (Estimate)	Array Size > 1MW	Base ITC	Prevailing Wages	Domestic Adder	Energy Community	Low-Income Bonus	Low-Income Residential Bldg. Proj.	Total
Facility Name	**Yes / No**	**6%**	**24%**	**0%, 2%, 10%**	**0%, 2%, 10%**	**0%, 10%**	**10%**	**ITC**
Babylon Elementary	NO	6%	24%	0%	0%	0%	0%	**30%**
Babylon Memorial Grade	NO	6%	24%	0%	0%	0%	0%	**30%**
Babylon Jr. & High School	NO	6%	24%	0%	0%	0%	0%	**30%**

6.3.8.1.2. The following is how the Energy Community Tax Credit Bonus was estimated:

Facility Name	Coal Closure Community Census Track direct Adjoining w/ closure	Coal Closure Census Track	MSA/Non-MSAs that are Energy Communities	Brownfield Site	QUALIFY
Babylon Elementary	NO	NO	NO	NO	NO
Babylon Memorial Grade	NO	NO	NO	NO	NO
Babylon Jr. & High School	NO	NO	NO	NO	NO

6.3.8.1.3. The following is how the Low-Income Communities Bonus Credit Program Incentive was estimated:

Facility Name	Category 1 Eligibility	Additional Selection Criteria | Geographic	Additional Selection Criteria | Geographic	Overall
Babylon Elementary	NO	No	NO	NO
Babylon Memorial Grade	No	No	No	NO
Babylon Jr. & High School	No	No	No	NO

6.3.8.2. **Utility Rebates / Incentives**

ESG will assist in applying for applicable incentives offered through the PSE&G. This includes submitting application forms and data on behalf of the Owner and following up with the program administrators to answer any questions or provide additional information.

6.3.8.2.1. The following summary is the estimated rebate / Incentives used in financial modeling with the rightmost column showing the total estimated rebate Incentive:

The Contract Price assumes the Owner will receive rebates in the amount listed below for the performance of the Work in Exhibit A. In the event the dollar value of the rebates received is less than the amount stated herein due to causes beyond ESG's reasonable control, including, but not limited to, changes in the rebate program, delays due to NY SED review, etc., ESG and Owner shall, by mutual agreement in writing, decrease the Contract Price by the amount of unpaid rebates and reduce the Scope of Work by an equitable amount to make up the difference, provided, however, that in the event that the Scope of Work is modified, the parties shall agree on a modification to the Energy Savings Guarantee to reflect the change in scope.

The following ECMs have an estimated total incentive of **$124,587**

Guaranteed Rebates

ECM No.	ECM	Estimated Rebates ($)
01	LED Lighting – Interior	$32,865
02	LED Lighting – Exterior	$660
03A	Solar PV - Babylon ES	$0
03B	Solar PV - Grade School	$0
03C	Solar PV - Jr & HS	$0
04	Roof Restoration at Grade School	$0
05	Building Envelope Upgrades	$7,982
06	Piping Insulation	$6,040
07	Steam Trap Upgrades - Retrofit	$5,120
08	Boiler Replacements	$22,750
09	Walk-In Cooler/Freezer Controls	$847
10	Plug-load Controls	$4,510
11	Retro-commissioning	$3,447
12	Exhaust Fan Control for Air Quality	$17,150
13A	Building Controls - Upgrades	$5,240
13B	Building Controls - AHU Units with DCV	$17,976
	Totals	**$124,587**

[Remainder of page intentionally left blank]

EXHIBIT C

OPINION OF OWNER'S COUNSEL
(TO BE TYPED ON COUNSEL'S LETTERHEAD)

Energy Systems Group, LLC
And Its Assignee
9877 Eastgate Court
Newburgh, IN 47630

Ladies and Gentlemen:

I am counsel for the Babylon Union Free School District ("Owner"). In order to render this opinion I have reviewed the Energy Performance Contract (the "Agreement"), dated as of _____ ____, _____, between Owner and Energy Systems Group, LLC ("Contractor"), and other documents and instruments related to the Agreement or otherwise necessary to render this opinion, as well as all proceedings taken by Owner in connection with the Agreement. Capitalized terms not otherwise defined herein shall have the meanings ascribed to them in the Agreement. Based upon the foregoing it is my opinion that:

1. Owner is a duly organized and validly existing political subdivision of the State of New York and is a political subdivision within the meaning of Section 103 of the Internal Revenue Code and related regulations and rulings.

2. Owner has the power and authority to execute and perform the Agreement and to purchase ECMs from Contractor thereunder.

3. The Agreement and related instruments and documents:
   (a) Have been duly authorized by appropriate resolutions;
   (b) Do not contravene and will not violate or result in a default under any charter, certificate of incorporation, by-laws, indenture, or any other agreement or instrument by which Owner or its property is bound or to which Owner is a party;
   (c) The Agreement has been duly executed by the duly authorized officers of Owner, and do and will constitute the legal, valid, and binding obligations of Owner enforceable against Owner in accordance with their respective terms.

4. No approval or consent is required from any governmental authority with respect to the entering into or performance by Owner of the Agreement and the transactions contemplated thereby or if any such approval is required it has been duly obtained.

5. No litigation or other proceedings are pending or, to the best of my knowledge, threatened against Owner which would adversely affect Owner's legal title to the ECMs or, if decided adversely to Owner, would materially affect its financial condition.

This opinion is for the benefit of the addressee and any Assignee, and you and such Assignee and any counsel engaged by you or such Assignee shall be entitled to rely hereupon, including such counsel's reliance hereupon in giving its opinion addressed to other persons.

Very truly yours,

EXHIBIT D

STATE SPECIFIC STATUTORY REQUIREMENTS FOR NEW YORK AGENCIES, MUNICIPALITIES AND PUBLIC AUTHORITIES

The Owner and the Contractor agree that the following statutory and other requirements shall be applicable to this Agreement:

1. The provisions of New York Energy Law §9-101 through 9-103 regarding energy performance contracts shall apply to this Agreement.

2. The Project includes the provision of energy services including the installation, maintenance or management of energy systems or equipment to improve energy efficiency, or produce energy, in exchange for a portion of the energy savings or revenues.

3. The duration of the energy performance contract shall not exceed the lesser of eighteen years or the reasonably expected useful life of the equipment subject to such contract.

4. The energy performance contract shall contain the following clause: "This contract shall be deemed executory only to the extent of the monies appropriated and available for the purpose of the contract, and no liability on account therefor shall be incurred beyond the amount of such monies. It is understood that neither this contract nor any representation by any public employee or officer creates any legal or moral obligation to request, appropriate or make available monies for the purpose of the contract."

5. This Project shall have been procured by issuing and advertising a written request for proposals in accordance with policies, procedures or guidelines that the agency, municipality or public authority has adopted pursuant to applicable state laws.

6. This Project is also subject to the procedures and Regulations of the Commission of Education, Section 155.20. Energy performance contracts, 8 NYCRR §155.20, current with amendments.

EXHIBIT E

WAGE AND HOURS PROVISIONS; PREVAILING WAGE DETERMINATION

Contractor shall comply with Article 8 of the Labor Law or a building service Contract covered by Article 9 thereof. Neither Contractor's employees nor the employees of its subcontractors may be required or permitted to work more than the number of hours or days stated in said statutes, except as otherwise provided in the State Employment Regulation and as set forth in the prevailing wage and supplement schedules issued by the New York State Department of Labor. Updated PDF copies of the prevailing wage schedule for this Project may be accessed through the New York State Department of Labor's website: www.labor.state.ny.us utilizing the Project's assigned Prevailing Wage Case Number (PRC#), listed below. Furthermore, the Contractor and its subcontractors must pay at least the prevailing wage rate and pay or provide the prevailing supplements, including the premium rates for overtime pay, as determined by the New York State Department of Labor in accordance with the Labor Law.

ESG Project No.: CPBWI00643
PRC No.: 2024004585
Current Wage Rate Schedule: https://www.labor.ny.gov/home/