PERFORMANCE CONTRACT

This Performance Contract (this "Agreement") is made this 27 day of September, 2024 between:

PARTIES

JOHNSON CONTROLS, INC. ("JCI")
915 Holt Ave. Unit#7
Manchester, NH 03109

and

CITY OF RUTLAND ("Customer")
1 Strongs Avenue
Rutland, VT 05702

RECITALS

WHEREAS, Customer desires to retain JCI to perform the work specified in Schedule 1 (Scope of Work) hereto (the "Work") relating to the installation of the improvement measures (the "Improvement Measures") described therein; and

WHEREAS, Customer is authorized and empowered under applicable Laws (as defined below) to enter into this Agreement, and has taken all necessary action under applicable Laws to enter into this Agreement; and

WHEREAS, Customer has selected JCI to perform the Work after it determined JCI's proposal was the most advantageous to Customer in accordance with all applicable procurement and other Laws.

NOW, THEREFORE, in consideration of the mutual promises set forth herein, the parties agree as follows:

AGREEMENT

1. **SCOPE OF THE AGREEMENT.** JCI shall perform the Work set forth in Schedule 1. After the Work is Substantially Complete (as defined below) and the Certificate of Substantial Completion is executed by Customer and JCI, JCI shall provide the assured performance guarantee (the "Assured Performance Guarantee") and the measurement and verification services (the "M&V Services") set forth in Schedule 2 (Assured Performance Guarantee) and/or Schedule 2A (Assured Performance Guarantee – Utility Meters), as applicable. Customer shall make payments to JCI for the Work and the M&V Services in accordance with Schedule 4 (Price and Payment Terms).

2. **AGREEMENT DOCUMENTS:** In addition to the terms and conditions of this Agreement, the following Schedules are incorporated into and shall be deemed an integral part of this Agreement:

   Schedule 1 – Scope of Work
   Schedule 2 – Assured Performance Guarantee
   Schedule 3 – Customer Responsibilities
   Schedule 4 – Price and Payment Terms
   Attachment 1 – Notice to Proceed
   Attachment 2 – Change Order
   Attachment 3 – Certificate of Substantial Completion
   Attachment 4 – Certificate of Final Completion
   Attachment 5 – Savings Calculations
   Attachment 6 – Preliminary Solar PV Designs & Production Reports
   Attachment 7 – Lighting Design
   Attachment 8 – Weatherization Detail

3. **NOTICE TO PROCEED; SUBSTANTIAL COMPLETION; M&V SERVICES.** This Agreement shall become effective on the date of the last signature on the signature page below. JCI shall commence performance of the Work within ten (10) business days of receipt of Customer's Notice to Proceed, a form of which is attached hereto as Attachment 1, and shall achieve Substantial Completion of the Work by the Substantial Completion date, which shall be the date on which Customer executes a Certificate of Substantial Completion substantially in the form attached hereto as Attachment 3.

   For purposes of this Agreement, "Substantial Completion" means that JCI has provided sufficient materials and services to permit Customer to operate the Improvement Measures. The M&V Services shall commence on the first day of the month following the month in which Customer executes a Certificate of Substantial Completion and shall continue throughout the Guarantee Term, subject to earlier termination of the Assured Performance Guarantee as provided herein. Customer acknowledges and agrees that if, for any reason, it (i) cancels or terminates receipt of M&V Services, (ii) fails to pay for M&V Services in accordance with Schedule 4, (iii) fails to fulfill any of Customer's responsibilities necessary to enable JCI to complete the Work and provide the M&V Services, or (iv) otherwise cancels, terminates or materially breaches this Agreement, the Assured Performance Guarantee shall automatically terminate and JCI shall have no liability thereunder.

4. **DELAYS AND IMPACTS.** If JCI is delayed or impacted in the commencement, performance, or completion of the Work and/or M&V Services by causes beyond its control and without its fault, including but not limited to inability to access property; concealed or unknown conditions encountered at the project, differing from the conditions represented by Customer in the bid documents or otherwise disclosed by Customer to JCI prior to the commencement of the Work; a Force Majeure Event (as defined below) condition; failure by Customer to perform its obligations under this Agreement; or failure by Customer to cooperate with JCI in the timely completion of the Work, JCI shall provide written notice to Customer of the existence, extent of, and reason for such delays and impacts. Under such circumstances, an equitable adjustment (i) in the time for performance, price, scope and payment terms, and (ii) to the Assured Performance Guarantee shall be made by mutual agreement of the parties.

5. **ACCESS.** Customer shall provide JCI, its subcontractors, and its agents reasonable and safe access to all facilities and properties in Customer's control that are subject to the Work and M&V Services. Customer further agrees to assist JCI, its subcontractors, and its agents to gain access to facilities and properties that are not controlled by Customer but are necessary for JCI to complete the Work and provide the M&V Services. An equitable adjustment (i) in the time for performance, price and payment terms, and (ii) to the Assured Performance Guarantee shall be made by mutual agreement of the parties, as a result of any failure to grant such access.

6. **PERMITS, TAXES, AND FEES.** Unless otherwise specified in Schedule 3 (Customer Responsibilities), JCI shall be responsible for obtaining all building permits required for it to perform the Work. Unless otherwise specified in Schedule 1 (Scope of Work), Customer shall be responsible for obtaining all other permits, licenses, approvals, permissions and certifications, including but not limited to, all zoning and land use changes or exceptions required for the provision of the Work or the ownership and use of the Improvement Measures. JCI shall not be obligated to provide any changes to or improvement of the facilities or any portion thereof required under any applicable building, fire, safety, sprinkler or other applicable code, standard, law, regulation, ordinance or other requirement unless the same expressly regulates the installation of the Improvement Measures. Without limiting the foregoing, JCI's obligations with respect to the Work is not intended to encompass any changes or improvements that relate to any compliance matters (whether known or unknown) that are not directly related to the installation of the Improvement Measures or which have been imposed or enforced because of the occasion or opportunity of review by any governmental authority. Customer shall be responsible for and shall pay when due all assessments, charges and sales, use, property, excise, or other taxes now or hereafter imposed by any governmental body or agency upon the provision of the Work or the M&V Services, implementation or presence of the Improvement Measures, the use of the Improvement Measures or payments due to JCI under this Agreement, other than taxes upon the net income of JCI. Customer shall also be responsible for real or personal property taxes relating to equipment or material included in the Improvement Measures. Any fees, taxes, or other lawful charges paid by JCI on account of Customer shall become immediately due from Customer to JCI.

7. **WARRANTY.** JCI will perform the Work in a professional, workman-like manner. JCI will promptly re-perform any non-conforming Work for no charge, as long as Customer provides written notice to JCI within one (1) year following Substantial Completion or such other period identified in Schedule 1. If JCI installs or furnishes goods or equipment under this Agreement, and such goods or equipment are covered by an end-user warranty from their manufacturer, JCI will transfer the benefits of such warranty to Customer. The foregoing remedy with respect to the Work, together with any remedy provided by goods or equipment manufacturers, shall be Customer's sole and exclusive remedies for warranty claims. Customer agrees that the one (1) year period following Substantial Completion, or such other period identified in Schedule 1, shall be a reasonable time for purposes of submitting valid warranty claims with respect to the Work. These exclusive remedies shall not have failed of their essential purpose so long as JCI transfers the benefits of any goods or equipment end-user warranty to Customer and remains willing to promptly re-perform any non-conforming Work for no charge after receipt of written notice within the agreed-upon warranty time period. NO OTHER EXPRESS OR IMPLIED WARRANTIES, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE PROVIDED BY JCI. JCI does not guaranty that any Improvement Measures will perform in accordance with the manufacturer's specifications over the term of this Agreement, other than with respect to the limited warranty applicable to equipment actually manufactured by JCI, or if the performance failure is related to JCI's workmanship, each as described above. Customer's sole remedy for failed or non-performing Improvement Measures not related to JCI's workmanship is to pursue claims directly against the manufacturer. This warranty does not extend to any Work that has been abused, altered, or misused, or repaired by Customer or third parties without the supervision or prior written approval of JCI. Except with respect to goods or equipment manufactured by JCI and furnished to Customer hereunder, for which JCI shall provide its express written manufacturer's warranty, JCI shall not be considered a merchant or vendor of goods or equipment.

8. **CLEANUP.** JCI shall keep the premises and the surrounding area free from accumulation of waste materials or rubbish caused by the Work and, upon completion of the Work, JCI shall remove all waste materials, rubbish, tools, construction equipment, machinery, and surplus materials.

9. **SAFETY; COMPLIANCE WITH LAWS.** JCI shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Work and M&V Services. Each of JCI and Customer shall comply with all applicable laws, ordinances, rules, regulations, and lawful orders of public authorities (collectively, "Laws") in connection with its performance hereunder.

10. **HAZARDOUS MATERIALS.**

    A. JCI shall notify Customer whenever JCI Hazardous Materials are brought onto Customer's premises by JCI. JCI shall be responsible for removing or disposing of any JCI Hazardous Materials and for the remediation of any areas to the extent impacted by the release of JCI Hazardous Materials. For any Non-JCI Hazardous Materials, Customer shall supply JCI with any information in its possession relating to the presence of such materials if their presence may affect JCI's performance of the Work. It is JCI's policy to seek certification for facilities constructed prior to 1982 that no asbestos containing materials are present, and Customer shall at its own cost and expense provide such certification for buildings it owns or aid JCI in obtaining such certification from facility owners in the case of buildings that Customer does not own, if JCI will undertake Work in the facility that could disturb such asbestos containing materials. If Customer becomes aware of or suspects the presence of Non-JCI Hazardous Materials that may interfere with Work, it will immediately provide notice to JCI. Upon such notice, or if JCI becomes aware of or suspects the presence of Non-JCI Hazardous Materials that may interfere with Work, JCI shall promptly stop the Work in the affected area. As between Customer and JCI, Customer shall be responsible at its sole expense for removing and disposing of Non-JCI Hazardous Materials from its facilities and the remediation of any areas impacted by the release of Non-JCI Hazardous Materials in conformance with all applicable Laws and addressing the impact of its disturbance before JCI continues with its Work.

    B. To the fullest extent permitted by Law, Customer shall indemnify, defend and hold harmless JCI and its directors, officers, employees, agents, representatives, shareholders, affiliates, and successors and assigns, from and against any and all losses, costs, damages, expenses (including reasonable legal fees

and defense costs), claims, causes of action or liability, directly or indirectly, relating to or arising from Customer's negligent use, storage, release, discharge, handling or presence of Non-JCI Hazardous Materials (actual or alleged and regardless of the cause of such condition) on, under or about the facilities, or Customer's failure to comply with this Article 10.

C. To the fullest extent permitted by Law, JCI shall indemnify, defend and hold harmless Customer and its elected officials, appointees, officers, employees, agents, representatives, affiliates, and successors and assigns, from and against any and all losses, costs, damages, expenses (including reasonable legal fees and defense costs), claims, causes of action or liability, directly or indirectly, relating to or arising from (1) JCI's negligent use, storage, release, discharge, handling or presence of (i) JCI Hazardous Materials (actual or alleged and regardless of the cause of such condition) on, under or about the facilities, or (ii) Non-JCI Hazardous Materials the presence of which JCI was made aware (actual or alleged and regardless of the cause of such condition) on, under or about the facilities or (2) JCI's failure to comply with this Article 10.

D. Definitions Applicable to this Article 10:

i. "Hazardous Materials" – Hazardous Materials are any material or substance that, whether by its nature or use, is now or hereafter defined or regulated as a hazardous waste, hazardous substance, pollutant or contaminant under applicable Laws relating to or addressing public or employee health and safety and protection of the environment, or which is toxic, explosive, corrosive, flammable, radioactive, carcinogenic, mutagenic or otherwise hazardous or which is or contains petroleum, gasoline, diesel, fuel, another petroleum hydrocarbon product, or polychlorinated biphenyls. Hazardous Materials specifically includes without limitation mold, lead-based paint and asbestos containing materials.

ii. "JCI Hazardous Materials" – JCI Hazardous Materials are any Hazardous Materials brought onto Customer's premises by JCI in providing the Work.

iii. "Non-JCI Hazardous Materials" – Non-JCI Hazardous Materials are any Hazardous Materials located on, about or under Customer's premises, other than JCI Hazardous Materials.

11. CHANGE ORDERS. The parties, without invalidating this Agreement, may request changes in the Work to be performed under this Agreement, consisting of additions, deletions, or other revisions to the Work ("Change Orders"). The price and payment terms, time for performance and, if necessary, the Assured Performance Guarantee, shall be equitably adjusted in accordance with the Change Order by mutual agreement of the parties. JCI may delay performance until adjustments arising out of the Change Order are clarified and agreed upon. Any Change Order must be signed by an authorized representative of each party. If concealed or unknown conditions are encountered at the project, differing from the conditions represented by Customer in the bid documents or otherwise disclosed by Customer to JCI prior to the commencement of the Work, price and payment terms, time for performance and, if necessary, the Assured Performance Guarantee, shall be equitably adjusted by mutual agreement of the parties. Any work or expense required by a Change Order or other adjustment shall not be performed or incurred until such Change Order or adjustment is agreed-upon by the parties.

12. CUSTOMER FINANCING; TREATMENT; TAXES. The parties acknowledge and agree that JCI is not making any representation or warranty to Customer with respect to matters not expressly addressed in this Agreement, including, but not limited to:

(a) Customer's ability to obtain or make payments on any financing associated with paying for the Improvement Measures, related services, or otherwise;
(b) Customer's proper legal, tax, accounting, or credit rating agency treatment relating to this Agreement; and
(c) the necessity of Customer to raise taxes or seek additional funding for any purpose.

Customer is solely responsible for its obligations and determinations with respect to the foregoing matters. In addition, the parties acknowledge and agree that Customer shall be responsible to comply, at its cost and expense, with all Laws that may be applicable to it relating to performance contracting, including, without limitation, any requirements relating to the procurement of goods and/or services and any legal, accounting, or engineering opinions or reviews required or obtained in connection with this Agreement. JCI shall be responsible to comply, at its cost and expense, with all Laws that may be applicable to it relating to its performance under this Agreement, including, without limitation, any legal, accounting, or engineering opinions or reviews required or obtained in connection with this Agreement.

13. **INSURANCE.** JCI shall maintain insurance in the amounts set forth below in full force and effect at all times until the Work has been completed, and shall provide a certificate evidencing such coverage upon execution of this Agreement.

COVERAGES	LIMITS OF LIABILITY
Workmen's Compensation Insurance or self-insurance, including Employer's Liability	Statutory
Commercial General Liability Insurance	$5,000,000 Per Occurrence $5,000,000 Aggregate
Comprehensive Automobile Liability Insurance	$5,000,000 Combined Single Limit

The above limits may be obtained through primary and excess policies, and may be subject to self-insured retentions, which shall be disclosed in the above-referenced certificate

The Commercial General Liability coverage required for performance of this Agreement shall include “City of Rutland” as Additional Insured. Coverage shall be primary and non-contributory with any other insurance and self-insurance to the extent of the negligence of JCI.

There shall be no cancellation, change, potential exhaustion of aggregate limits or non-renewal of insurance coverage(s) without thirty (30) days’ prior written notice to Customer.

Customer shall be responsible for obtaining builder's risk insurance coverage for the Improvement Measures and shall at all times be responsible for any loss or casualty to the Improvement Measures. Customer shall also maintain insurance coverage, of the types and in the amounts customary for the conduct of its business, throughout the term of this Agreement.

14. **INDEMNIFICATION.** To the fullest extent permitted by applicable Law, JCI and Customer shall indemnify (each an “Indemnifying Party”) each other and their respective elected officials, appointees, directors, officers, employees, agents, representatives, shareholders, affiliates, and successors and assigns (“Indemnified Party”) for all damages, losses and expenses with respect to any third-party claims against the Indemnified Party for personal injury (including death) or tangible property damage, but only to the extent such damages, losses and expenses are caused by the negligence or willful misconduct of the Indemnifying Party in fulfilling its obligations under this Agreement.

15. **LIMITATION OF LIABILITY.** NEITHER JCI NOR CUSTOMER WILL BE RESPONSIBLE TO THE OTHER FOR ANY SPECIAL, INDIRECT, CONSEQUENTIAL, REMOTE, PUNITIVE, EXEMPLARY, LOSS OF PROFITS OR REVENUE, OR SIMILAR DAMAGES (OTHER THAN LOSS OF USE), REGARDLESS OF HOW CHARACTERIZED AND REGARDLESS OF A PARTY HAVING BEEN ADVISED OF THE POSSIBILITY OF SUCH POTENTIAL LOSSES OR RELIEF, ARISING IN ANY MANNER FROM THIS AGREEMENT, THE WORK, THE IMPROVEMENT MEASURES, THE PREMISES, THE M&V SERVICES, OR OTHERWISE. WITHOUT LIMITING JCI’S EXPRESS OBLIGATIONS UNDER THE ASSURED PERFORMANCE GUARANTEE, JCI’S LIABILITY UNDER THIS AGREEMENT, REGARDLESS OF THE FORM OF ACTION, SHALL IN NO EVENT EXCEED TWO TIMES (2X) THE AMOUNT OF THE PRICE OF THIS AGREEMENT. The foregoing waivers and limitations are fundamental elements of the basis for this Agreement between JCI

and Customer, and each party acknowledges that JCI would not be able to provide the work and services contemplated by this Agreement on an economic basis in the absence of such waivers and limitations, and would not have entered into this Agreement without such waivers and limitations.

16. **FORCE MAJEURE EVENTS.** Neither party will be responsible to the other for damages, loss, injury, or delay caused by Force Majeure Events. As used herein, "Force Majeure Events" are conditions that are beyond the reasonable control and without the intentional misconduct or negligence of a party, either foreseeable or unforeseeable, including, without limitation, severe weather, flooding, seismic disturbances, acts of God, acts or omissions of government agencies, condemnation, strikes, labor disputes, epidemics, pandemics, disease, quarantines or other public health risks and/or responses, fires, explosions or other casualties, thefts, vandalism, riots or war, acts of terrorism, electrical power outages, interruptions or degradations in telecommunications, computer, or electronic communications systems, changes in Laws, data breach, cyber-attacks, ransomware, or unavailability, delayed delivery or an increase of 5% or more in cost of any parts, materials or supplies to be used in the project between date of contract and date of installation.

17. **JCI'S PROPERTY.** All materials furnished or used by JCI personnel and/or JCI subcontractors or agents at the installation site, including documentation, schematics, test equipment, software and associated media that were never Customer's property remain the exclusive property of JCI or such other third party. Customer agrees not to use such materials for any purpose at any time without the express authorization of JCI. Customer agrees to allow JCI personnel and/or JCI subcontractors or agents to retrieve and to remove all such materials remaining for a reasonable period of time after installation or maintenance operations have been completed. Customer acknowledges that any software furnished in connection with the Work and/or M&V Services is proprietary and subject to the provisions of any software license agreement associated with such software.

18. **DISPUTES.** JCI and Customer will attempt to settle any controversy, dispute, difference, or claim between them concerning the performance, enforcement, or interpretation of this Agreement (collectively, "Dispute") through direct discussion in good faith, but if unsuccessful, will submit any Dispute to non-binding mediation in the nearest major metropolitan area of the state where the project is performed. If the parties are unable to agree on a mediator or a date for mediation, either party may request JAMS, Inc. to appoint a mediator and designate the time and procedure for mediation. Such mediator shall be knowledgeable, to each party's reasonable satisfaction, with respect to matters concerning construction law. Neither JCI nor Customer will file a lawsuit against the other until not less than sixty (60) days after the mediation referred to herein has occurred, unless one or both parties is genuinely and reasonably concerned that any applicable statute of limitations is on the verge of expiring. JCI AND CUSTOMER HEREBY WAIVE THEIR RESPECTIVE RIGHTS TO A JURY TRIAL AS TO ANY CLAIM OR CAUSE OF ACTION BASED UPON, ARISING OUT OF OR DIRECTLY OR INDIRECTLY RELATED TO THIS AGREEMENT, INCLUDING CONTRACT, TORT AND STATUTORY CLAIMS, AND EACH OF THE PARTIES HERETO ACKNOWLEDGES THAT THIS WAIVER IS A MATERIAL INDUCEMENT TO ENTER INTO A BUSINESS RELATIONSHIP, THAT EACH HAS RELIED ON THIS WAIVER IN ENTERING INTO THIS AGREEMENT, AND THAT EACH WILL CONTINUE TO RELY ON THIS WAIVER IN THEIR RELATED FUTURE DEALINGS UNDER THIS AGREEMENT.

19. **GOVERNING LAW.** This Agreement and the construction and enforceability thereof shall be interpreted in accordance with the laws of the state where the Work is conducted.

20. **179D BENEFITS.** As a result of JCI'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 JCI as the party primarily responsible for designing energy efficiency improvements implemented at Customer'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 JCI. Customer hereby agrees to allocate to JCI such deduction and any similar deduction enacted by Congress to replace IRC 179D. Customer shall cooperate with JCI by executing annually, during the term of this Agreement, and returning to JCI, a written allocation and declaration required by IRC 179D within thirty (30) days of receipt. JCI will prepare and is responsible for the accuracy of such allocation documents and all accompanying documentation provided for Customer's execution. JCI must provide Customer with the date by which such documentation must be returned to JCI, subject to the thirty (30)

day time period outlined above. Notwithstanding anything to the contrary herein, Customer 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 JCI. JCI assumes all risk related to such allocation and deduction.

21. **CONSENTS; APPROVALS; COOPERATION**. Whenever a party's consent, approval, satisfaction or determination shall be required or permitted under this Agreement, and this Agreement does not expressly state that such party may act in its sole discretion, such consent, approval, satisfaction or determination shall not be unreasonably withheld, qualified, conditioned or delayed, whether or not such a "reasonableness" standard is expressly stated in this Agreement. Whenever a party's cooperation is required by the other party in order to carry out that party's obligations hereunder, the parties agree that they shall act in good faith and reasonably in so cooperating with each other and/or each other's designated representatives or assignees or subcontractors. Customer shall furnish decisions, information, and approvals required by this Agreement in a timely manner so as not to delay the performance of the Work or M&V Services.

22. **FURTHER ASSURANCES.** The parties shall execute and deliver all documents and perform all further acts that may be reasonably necessary to effectuate the provisions of this Agreement.

23. **INDEPENDENT CONTRACTOR.** The relationship of the parties hereunder shall be that of independent contractors. Nothing in this Agreement shall be deemed to create a partnership, joint venture, fiduciary, or similar relationship between the parties.

24. **POWER AND AUTHORITY.** Each party represents and warrants to the other that (i) it has all requisite power and authority to execute and deliver this Agreement and perform its obligations hereunder, (ii) all corporate, board, body politic, or other approvals necessary for its execution, delivery, and performance of this Agreement have been or will be obtained, and (iii) this Agreement constitutes its legal, valid, and binding obligation.

25. **SEVERABILITY.** In the event that any clause, provision, or portion of this Agreement or any part thereof shall be declared invalid, void, or unenforceable by any court having jurisdiction, such invalidity shall not affect the validity or enforceability of the remaining portions of this Agreement unless the result would be manifestly inequitable or materially impair the benefits intended to inure to either party under this Agreement.

26. **COMPLETE AGREEMENT.** It is understood and agreed that this Agreement contains the entire agreement between the parties relating to all issues involving the subject matter of this Agreement. No binding understandings, statements, promises or inducements contrary to this Agreement exist. This Agreement supersedes and cancels all previous agreements, negotiations, communications, commitments and understandings with respect to the subject matter hereof, whether made orally or in writing. Each of the parties to this Agreement expressly warrants and represents to the other that no promise or agreement which is not herein expressed has been made to the other, and that neither party is relying upon any statement or representation of the other that is not expressly set forth in this Agreement. Each party hereto is relying exclusively on the terms of this Agreement, its own judgment, and the advice of its own legal counsel and/or other advisors in entering into this Agreement. Customer acknowledges and agrees that any purchase order issued by Customer associated with this Agreement is intended only to establish payment authority for Customer's internal accounting purposes. No purchase order shall be considered a counteroffer, amendment, modification, or other revision to the terms of this Agreement.

27. **HEADINGS.** The captions and titles in this Agreement are for convenience only and shall not affect the interpretation or meaning of this Agreement.

28. **COUNTERPARTS.** This Agreement may be executed in any number of counterparts, all of which when taken together shall constitute one single agreement between the parties.

29. **NOTICES.** All notices or communications related to this Agreement shall be in writing and shall be deemed served if and when sent by facsimile or mailed by certified or registered mail: to Johnson Controls, Inc. at the address listed on the first page of this Agreement, ATTN: Regional Solutions Manager, with a copy to Johnson

Controls, Inc., ATTN: General Counsel – Building Efficiency Americas, 507 East Michigan Street, Milwaukee, Wisconsin, 53202: and to Customer at the address listed on the first page of this Agreement.

30. **TERMINATION.** If Customer determines that JCI has materially failed to perform in accordance with the terms and conditions of this Agreement, Customer may terminate all or part of this Agreement for cause. This termination shall become effective if JCI does not cure its failure to perform within forty-five (45) days (or more, if the nature of the default cannot be reasonably cured within forty-five (45) days and JCI has commenced efforts to cure and is diligently pursuing the cure) after receipt of a notice of intention to terminate from Customer specifying the failure in performance. If Customer incurs additional costs, expenses, or other damages due to the failure of JCI to perform pursuant to this Agreement, JCI shall be liable for these additional costs, expenses, or other damages.

    Customer may terminate this Agreement for convenience at any time upon fifteen (15) days prior written notice to JCI, in which case Customer will pay JCI for all services performed and all expenses incurred under this Agreement, up to, and including, the effective date of notice plus reasonable costs incurred to demobilize and wind down operations under the Agreement, including subcontractor, vendor, and supplier termination costs and expenses, less any costs, expenses or other damages due to the failure of JCI to perform pursuant to this Agreement. In ascertaining the services actually rendered up to the date of notice, consideration will be given to both completed work and work in progress, whether delivered to Customer or in the possession of JCI, and to authorized reimbursable expenses. No other compensation will be payable to JCI for anticipated profit on unperformed services.

    JCI may terminate this Agreement for cause if Customer fails to cure a material default in performance within a period of thirty (30) days (or more, if authorized in writing by JCI), after receipt from JCI of a written termination notice specifying the default in performance. In the event of termination for cause by JCI, Customer will pay JCI in accordance with the above paragraph.

31. **SOFTWARE AND DIGITAL SERVICES.** Use, implementation, and deployment of software and hosted software products proprietary to JCI ("Software") offered under this Agreement shall be subject to, and governed by, JCI's standard terms for such Software and Software related professional services in effect from time to time at https://www.johnsoncontrols.com/techterms (collectively, the "Software Terms"). Applicable Software Terms are incorporated herein by this reference. Other than the right to use the Software as set forth in the Software Terms, JCI and its licensors reserve all right, title, and interest (including all intellectual property rights) in and to the Software and improvements to the Software. The Software that is licensed hereunder is licensed subject to the Software Terms and not sold. If there is a conflict between the other terms herein and the Software Terms, the Software Terms shall take precedence and govern with respect to rights and responsibilities relating to the Software, its implementation and deployment and any improvements thereto.

CITY OF RUTLAND	**JOHNSON CONTROLS, INC.**
Signature:	Signature:
Printed Name: Michael P Doenges	Printed Name: Dona F. Angello
Title: Mayor	Title: Area General Manager
Date: 9/27/2024	Date: 9/19/2024

SCOPE OF WORK

Table 1.1 Buildings

Building	Address	City	State	Zip Code	Sq. Ft.
City Hall	1 Strongs Ave.	Rutland	VT	05702	26,136
Fire Dept.	104 Center St.	Rutland	VT	05702	14,800
Giorgetti Rink/Park	2 Oak St. Ext.	Rutland	VT	05702	30,000
Police Dept.	108 Wales St.	Rutland	VT	05702	24,000
Water Treatment Facility	839 Post Rd. Ext.	Rutland	VT	05702	12,000
Recreation Center.	16 North St. Ext.	Rutland	VT	05702	21,600
DPW Bldg.	130 Spruce St.	Rutland	VT	05702	11,600
Waste Water Treatment Plant	110 Greens Hill Ln.	Rutland	VT	05702	26,400
Community Center	134 Community Center Dr.	Rutland	VT	05702	54,000
Water Dist. Facility	60 Pier Point	Rutland	VT	05702	3,900

- NOTE: Building sq. ft. approximate

SUMMARY OF MEASURES

Table 1.2 summarizes the Facility Improvement Measures (FIMs) included in the Energy Performance Contract for the Customer facilities listed in Table 1.1 Buildings.

Table 1.2 Facility Improvement Measure Matrix

FIM #	Proposed Measure	City Hall	Fire Dept.	Giorgetti Rink/Park	Police Dept.	Water Treatment Facility	Recreation Center	DPW Bldg.	Waste Water Treatment Plant	Community Ctr.	Water Dist. Facility	City Streets
1	Renewable Energy-Photovoltaic PV Generation		x	x	x		x			x		
2A	Lighting Retrofit- Interior	x			x		x			x	x	
2B	Lighting Retrofit- Exterior	x			x		x	x			x	
3	Weatherization	x	x	x	x	x	x	x	x	x	x	
4	Pipe & Valve Insulation	x	x	x		x				x		
5	Facilities Management System-Controls Modification	x			x					x		
6A	Mechanical System - AHU / RTU Replacements				x	x						
6B	Pumping System- VFD on HW Pumps	x								x		
6C	Mechanical System - Heating Upgrades								x			
6D	Mechanical System - Domestic Hot Water	x			x		x		x	x		
6E	Mechanical System - Split System Installation		x									
6F	Mechanical System - Chiller Upgrades											
7	Street Lighting											x

1. JCI will provide submittals of the materials and equipment to be installed in the scopes of work for review by Customer.
2. JCI and its subcontractors will acquire necessary permits and inspections for work done under this Agreement
3. Correction of any existing applicable building code violations identified by JCI during the execution of the Work are excluded unless specifically noted in this scope of work.

FIM 1- Renewable Energy – Photovoltaic (PV) Generation

JCI shall install new photovoltaic electrical generation systems that will interconnect with the existing electrical distribution systems at each location noted in Table 1.3 below.

Reference Attachment 6 Solar PV, Preliminary Solar PV Designs and Production Reports

Scope of Work

Subject to JCI civil & structural engineering reviews, JCI will furnish and install equipment, engineering, materials, permitting, and labor for Solar PV systems indicated in table 1.3

Table 1.3

	Design Criteria		
Facility	**kWdc**	**kWac**	**Annual kWh**
Giorgetti Rink	197.8	150	199,283
Recreation Ctr	98.1	90	111,223
Police Station	34.3	30	39,333
Community Center	157.5	125	178,452
Fire Station	22.9	17.3	26,063
Total:	**510.6**	**412.3**	**554,354**

In the event that the structural, geotechnical/ground evaluations, regulatory, and/or utility constraints require a change in the capacity of the equipment to be installed as part of the Work provided in connection with this FIM, JCI and Customer agree that the price to be paid for the Work set forth on Schedule 4 and Measured Energy Cost Avoidance shall be adjusted on a pro rata basis based on the number of kWdc that are changed as part of the FIM In such event JCI and Customer agree that the Agreement shall be adjusted by JCI as appropriate to effect the changes in the prior sentence via Attachment 2 Change Order form, provided that JCI will provide Customer with a written summary of such changes, showing cost and savings impact.

1. Pre-Construction

1.1. PV production analysis of each proposed location.
1.2. Design engineering and PV system sizing.
1.3. Geotechnical analysis for ground mounted structural supports.
1.4. Structural roof analysis prior to construction.
1.5. Prepare Green Mountain Power (GMP) interconnection application and related documentation, and coordination to achieve interconnection pre-approval.

2. Installation

2.1. Furnish and install all structural supports and racking for roof mounted solar PV systems
2.2. Provide all excavation, underground cabling, and site restoration for roof mounted solar PV systems.
2.3. Furnish and install all structural supports and racking for roof mounted solar PV arrays. Racking materials and ballast materials will be provided where applicable.
2.4. Furnish and install JA Solar (or equivalent) solar modules
2.5. Furnish and install Solar Edge, SMA Inverters (or equivalent) and accompanying supports.
2.6. Perform necessary electrical, mechanical, and structural testing and inspections

2.7. Furnish and install one web-based Data Acquisition System service at each solar site with a single centrally located weather station inclusive of a pyranometer.
2.8. Furnish and install revenue grade electric kWh metering for the solar PV sites referenced in Table 1.3 above.
2.9. Five (5)-year web-based monitoring service (included), may be extended by Customer at an additional cost after year five (5).
2.10. Furnish necessary wiring and conduit, including interconnection metering requirements.
2.11. Coordinate interconnection related activities with Utility in order to achieve authority to interconnect.
2.12. Test completed systems, including completing required utility process to achieve authority to interconnect.
2.13. Work shall comply with state and local codes and regulations and with the latest edition of applicable standards, codes, and specifications in effect at the time of contract signing.
2.14. Conduct training (8 hours) for designated personnel in the maintenance and care of the systems.

3. Clarifications

3.1. JCI does not include any upgrades or modifications to line side of utility meter. All interconnections are on the Customer's (load) side of meter.
3.2. Prior to grid connection, one power outage will be required for final electrical tie-ins at each site. Work will be scheduled during unoccupied periods. No temporary power will be provided
3.3. JCI will prepare and submit applications for Interconnection with the Utility. Work will commence only after Utility approval.
3.4. JCI will complete post installation documentation for interconnection and net-metering.
3.5. Customer is responsible for providing cell service to monitor the solar PV system performance for the term of the contract.
3.6. JCI does not include any resolution of existing design, service, and or distribution conditions known or unknown or any existing code issues
3.7. Repair or replacement of defective electrical equipment and electrical distribution system is excluded, except the equipment described in the Scope of Work (Defective equipment identified by JCI during implementation of the Scope of Work will be brought to the attention of the Customer)
3.8. JCI does not anticipate and has not included any hard digging (i.e. no blasting or rock removal). All trenching to be performed by normal means (Case 580 backhoe). Should additional means of excavation be required then JCI shall notify the Owner to mitigate or address at additional cost;
3.9. Relocation of underground utilities is excluded.

FIM 2- Lighting Retrofit

JCI will install new high efficiency LED lighting based on a lighting survey. A lighting line-by-line of the survey is included as Attachment 7.

Facilities Included in This Scope of Work

- City Hall
- Police Department
- Recreation Center
- Dept. Of Public Works (DPW) Bldg.
- Community Center
- Water Distribution Facility

Description of Work

1.1. A total of (766) new LED Fixtures-Kits/Flat Panels/TLEDs/Re-Lamps are included in this proposal.
1.2. A total of (238) 2x4, 2x2 and 1x4 recessed troffers fixtures, in drop ceilings are to be retrofitted with an LED retrofit "door kit" or a new LED fixture when the fixture style does not allow the "door kit". The LED "door kit" is a "new fixture *in a fixture*" retrofit where the new fixture goes into the old fixture body avoiding the dirt and mess of removing an old fixture out of a ceiling. The finished look will appear to be a completely new fixture when complete.
1.3. Non-troffer fixtures and troffer fixtures in hard ceiling or low use areas like storage closets will have their existing T8 and T5 lamps replaced with new T8 and T5 LED tubes (TLEDs), on the existing electronic ballasts.
1.4. A total of (346) fixtures were identified for making the conversion to the new TLED tubes.
1.5. Existing fixtures currently equipped with incandescent or CFLs will be replaced with LED lamps of appropriate style and configuration to maintain or improve the current illumination level.
1.6. All non-LED exterior lights were identified and will be converted to LED. A total of (30) exterior fixtures were identified for conversion to LED. There are (23) wall packs, area lights, and flood light fixtures to be replaced with new LED fixtures. The remaining fixtures will be re-lamped with the appropriate style LED replacement lamp.
1.7. JCI Workmanship is warranted for 1 year from date of substantial completion.
    1.7.1. LED tubes will have a 5-year extended warranty from the manufacturer.
    1.7.2. Fixtures will be warranted for 1 year from date of installation.

Exclusions

1.1. Repair or upgrades required to rectify existing lighting or electrical system code or energy code violations unless specifically described in this scope of work are excluded.
1.2. Repair or replacement of defective equipment, other than the equipment specifically described above is excluded. JCI will identify the location of defective equipment and notify the owner
1.3. Reconfiguration of existing lighting system layout, is excluded, except where noted herein
1.4. Repair, replacement or upgrade of existing indoor or exterior emergency and/or egress lighting system unless otherwise noted in the Scope of Work is excluded.
1.5. Repair or replacement of cracked, broken, missing, yellowed, or damaged fixture lenses or louvers unless otherwise noted in the Scope of Work is excluded.
1.6. Lighting fixtures not identified in the FIM Scope of Work are excluded from any repair or replacement scope;
1.7. Reconfiguration of existing lighting system layout is excluded, except where noted herein;
1.8. Conformance to IESNA standards is excluded if the existing layout does not comply with same;
1.9. Repair, replacement, or calibration of damaged or defective motion sensors, time clocks, switches, breakers, and wiring unless otherwise noted in the Scope of Work is excluded;

1.10. Repair, replacement or upgrade of existing indoor or exterior emergency and/or egress lighting system unless otherwise noted in the Scope of Work is excluded;
1.11. Replacement of defective emergency battery backup ballasts unless otherwise noted the Scope of Work is excluded;
1.12. Repair or upgrades required to rectify existing lighting or electrical system code violations unless specifically described in this scope of work

FIM 3- Weatherization

All locations were surveyed for the application of this measure. Energy is lost from various leakages throughout the buildings due to infiltration. The heat losses and heat gains occur due to gaps and openings that allow the building's conditioned (heated or cooled) air to mix with the outside ambient air. This measure will reduce air infiltration & exfiltration.

Facilities Included in This Scope of Work

- City Hall
- Giorgetti Rink / Park
- Police Department
- Recreation Center
- Fire Dept.
- Dept. Of Public Works (DPW) Bldg.
- Waste Water Treatment Plant
- Community Center
- Water Treatment Facility
- Water Distribution Facility

Table 1.4
Building Envelope Work Summary

	City Hall	Community Center	DPW Bldg.	Fire Dept.	Giorgetti Rink/Park	Police Dept.	Recreation Center.	Waste Water Treatment Plant	Water Dist. Facility	Water Treatment Facility
Building Envelope Improvements										
Attic Air Barrier Retrofit (SF)		6,200								
Caulking (LF)		440						40		
Door Weatherstrip-Doubles (Units)	2	5			4		2	1		1
Door Weatherstrip - Singles (Units)	4	7	3	3	1	4	6	5		2
Overhang Air Sealing (LF)		24					22			
Overhang Air Sealing (SF)							18			
Overhead Door Weatherstrip (Units)			16	7	1		5		3	1
Roll-Up Door Weatherstrip (Units)										1
Roof Air Barrier Retrofit (SF)			7,326							
Roof-Wall Intersection Air Sealing (LF)						381	562		193	
Wall Air Sealing (LF)									8	
Window Weatherization (Units)	24									
Window Restoration (Units)	83					66				
Supplemental Window System (SF)								84		
Roof Insulation (SF)		11,500			34,680					

Specific tasks noted in table 1.4 are described below:

General Building Envelope Improvements

- Attic / Roof Air Barrier Retrofit – The lack of an air barrier at the DPW building and Community Center allow conditioned air to escape into the vented attic space above the insulation layers. Since warm air rises, sealing the attic from the conditioned space is crucial to maintaining an efficient building. Air movement through fibrous insulation reduces the effectiveness of the existing insulation and especially results in comfort and efficiency complaints of building occupants. The scope assume no pipes are at risk of freezing are located above the existing thermal barrier as installation will further disconnect the attic space from the building making it colder in the winter.
- Caulking – There are unsealed perimeter joints and holes found at the window systems at the Community Center & WWTP. These gaps allow air to find its way into the wall and window frame cavities or directly from outside to inside resulting in unwanted energy losses.
- Door Weather Stripping – Deteriorated weather stripping materials, ineffective weather stripping installation and daylight showing at the perimeter of door systems create direct pathways for unwanted infiltration/ exfiltration throughout the City of Rutland.
- Overhang Air Sealing – Overhangs are roofs, floor systems or areas above entryways that extend beyond the plane of the exterior wall system. These areas of construction at the buildings were misunderstood by builders and the cavity that extends beyond the plane of the exterior wall system were incorrectly "connected" to the interior heated spaces of the building in many locations. Overhangs that are not properly sealed at the plane of the surface intended to separate the conditioned space from the outdoors leads to excessive air leakage and heat loss at these vulnerable areas in the building envelope.
- Overhead Door Weather Stripping/ Roll-up Door Weather Stripping – Remove existing weather stripping and replace with new commercial grade weather stripping to create a full air seal around the door.
- Roof-Wall Intersection Air Sealing – The roof-wall intersection is regularly an area that allows unwanted air leakage through the building shell. Exterior flashing and finish details at this area are not constructed to stop air leakage (exterior flashings are for water control, not air control); unsealed exterior flashing details combine with interior gaps in the framing between the roof and wall assembly to allow infiltration/ exfiltration.
- Wall Air Sealing – Small gaps in the wall of the Water Distribution Facility will be sealed.
- Window Weatherization – Gaskets at select windows of City Hall were installed short of the corners which is allowing air leakage. We recommend the corners of these windows be caulked with an appropriate wet sealing product to stop air leakage and provide incremental support to the window glazing.

Window Restoration

- Waste Water Treatment Administration Supplemental Window Installation – The polycarbonate sheets at the building frost and freeze up in the winter according to building occupants. These sheets provide very little protection from the cold climates experienced in Vermont. A double-pane interior storm window insert will be installed at these windows to improve insulation performance resulting in a more efficient and comfortable building.
- City Hall & Police Station Window Restoration – there are significant weaknesses with operational hardware components at the windows that result in excessive air infiltration and problems for occupants using the windows at City Hall and the Police Station. The infiltration reduction gains of new windows can be achieved through the window restoration approach with improved functionality and safety of a like new operational window in place.

Roof Insulation

<u>Giorgetti Ice Rink/Field House</u>

This building was constructed “loosely” with many gaps for air infiltration and very little building insulation. In the winter the ice rink suffers from extreme levels of condensation due to solar heat gain throughout the building (including a micro-climate of fog/clouds). In the summer solar heat gain raises the temperatures in the building to uncomfortable levels making the field area much less comfortable for those inside. A full reflective radiant barrier is proposed to be installed at the inside of wall panels and underside of the roof. There will be convection and conduction energy improvements by increasing the R-value to [R-20] but the main improvement will be extreme reduction of radiation heat gains and losses in the building.
The rear chain link wall assembly is not included in the scope of work.

Community Center

The roof currently has two layers of 2” isocyanurate roof insulation for a total of [R-22.8]. As of July 1, 2024 the Vermont.State Code requires a minimum of [R-45]. Increasing the current insulating value by at least an R-22.2 can be done by adding a new 3 ½” [R-20.5] isocyanurate roof insulation with an overlay of a [R-2.5] ½” High Density cover board. Doing this will give you a code compliant roof.

- Work to be performed on the high roof gym portion only (approximately 11,500 square feet)
- Remove the present rubber membrane
- Check the underlying surface.
- Install over the existing insulation new Firestone/Elevate 3 ½” isocyanurate roof insulation.
- Mechanically fasten over this new insulation, a new Firestone/Elevate ½” High Density(HD) insulating cover board.
- Adhere over the HD board a new 0.090 inche (90 mils) Firestone/Elevate EPDM rubber roofing membrane system.
- The wall will be flashed with the same membrane.
- Properly flash all existing protrusions as per Firestone/Elevate specifications.
- Build up the rear edge with new wood blocking to the height of the new insulations.
- Install a new custom Firestone/Elevate metal edge system.
- Replace the deteriorating concrete parapet cap covered with a new custom 24 gauge Firestone/Elevate Una-Clad factory painted metal cap
- Clear the grounds of related debris
- New completed roof insulation shall exceed Vermont State Code requiring a minimum of R-45
- The completed roof will be covered by the Firestone/Elevate 20 year Red Shield Material and Labor warranty which covers all the Firestone/Elevate materials.

Clarifications & Exclusions

1.1 Since the underlaying surface of the Community Center cannot be evaluated until the replacement has begun, any required repairs to said underlaying surface of the roof will be communicated and corrected. JCI has carried a $10,000 allowance for any potential issues that may be uncovered. Any amount above this value will be responsibility of Customer.

1.2 Repair or replacement of existing exterior doors and windows is excluded unless otherwise noted above. If any doors are found to be inoperable, or windows are found to be broken, JCI will report the deficiency to the customer for repair or replacement prior to JCI retrofitting the seals.

1.3 Modifications required to due to existing code violations, including but not limited to the Americans with Disabilities Act (ADA) and egress, are the responsibility of the customer.

1.4 The scope of work does not include repair or adjustment of any springs or opening mechanisms except as described above.

1.5 Repair or replacement of existing brick, masonry block or split face block is excluded in this scope of work.

1.6 Repair or replacement of existing attic space including rafters, roof decking, ceiling or roof areas is excluded in this scope of work

1.7 Cutting, patching, sealing and painting other than as described in the FIM scope is excluded.

1.8 The scope of work does not include the repair or installation of any structural systems.

1.9 Hazardous Materials – testing, remediation and/ or removal of any potentially hazardous material that is encountered is excluded from the JCI scope of work and pricing. Customer is responsible for testing, remediation and/ or removal of potentially hazardous material.

FIM 4- Pipe & Valve Insulation

JCI will insulate the exposed piping and valves in locations identified in Table 1.4. The insulation will prevent the loss of heat from the pipes, thereby saving boiler energy as well as reducing overheating conditions in adjacent spaces.

Facilities Included

- City Hall
- Community Center
- Fire Dept.
- Giorgetti Rink
- Water Treatment Facility

1. **Scope of Work**

1.1. Furnish and install insulation on uninsulated pipes, valves, and appurtenances as indicated in Table 1.5
1.2. Pipe insulation shall be cellular glass and pre-formed fiberglass with protective all-service jacketing, with R-Value to meet current energy code guidelines in effect at the time of contract signing.
1.3. Valves and flanges insulated with custom fabricated removable insulation blankets- Thermaxx or equal.
1.4. Tanks insulated with fiberglass pipe & tank wrap, covered with all-service protective jackets.

Table 1.5

CITY OF RUTLAND, VT
MECHANICAL, INSULATION SAVINGS SUMMARY

Building	Fluid Type	Pipe DIA (") or Tank Surface Area (SF)	Component	Insulation Thickness (")	Proposed Insulation Type	Heating or Cooling Hrs./Yr.	Total Quantity or Length	Total Eq Length (LF) or Total Area (SF)
City Hall	MTHW	1.5	Ball valve	1.5	Removable Blanket	5110	4	16.4
	MTHW	1.5	Check Valve	1.5	Removable Blanket	5110	2	8.2
	MTHW	1.5	End Cap	2	Cellular Glass	5110	1	1.8
	MTHW	1.5	Flange	1.5	Removable Blanket	5110	1	1.8
	MTHW	1.5	In-Line Pump	1.5	Removable Blanket	5110	2	10
	MTHW	1.5	Straight Pipe	2	Cellular Glass	5110	4	4
	MTHW	7.85	Air Seperator Tank	2	Cellular Glass	5110	1	7.85
Community Center	MTHW	2	Butterfly Valve	1.5	Removable Blanket	5110	4	16.4
	MTHW	2	Check Valve	1.5	Removable Blanket	5110	4	16.4
	MTHW	2	Flange	1.5	Removable Blanket	5110	8	14.4
	MTHW	2	In-Line Pump	1.5	Removable Blanket	5110	4	20
	MTHW	2	Straight Pipe	2	Cellular Glass	5110	8	8
	MTHW	2.5	Check Valve	1.5	Removable Blanket	5110	3	12.3
	MTHW	2.5	Control Valve	1.5	Removable Blanket	5110	1	4.1
	MTHW	2.5	Flange	1.5	Removable Blanket	5110	15	27
	MTHW	2.5	In-Line Pump	1.5	Removable Blanket	5110	2	10
	MTHW	7.85	Air Seperator Tank	2	Cellular Glass	5110	1	7.85

Building	Fluid Type	Pipe DIA (") or Tank Surface Area (SF)	Component	Insulation Thickness (")	Proposed Insulation Type	Heating or Cooling Hrs./Yr.	Total Quantity or Length	Total Eq Length (LF) or Total Area (SF)
Fire Deparment	MTHW	1	90 Degree Elbow	1.5	Cellular Glass	5110	5	9
	MTHW	1	90 Degree Elbow	1.5	Cellular Glass	5110	3	5.4
	MTHW	1	Straight Pipe	1.5	Cellular Glass	5110	15	15
	MTHW	1	Straight Pipe	1.5	Cellular Glass	5110	16	16
	MTHW	1.5	45 Degree Elbow	2	Cellular Glass	5110	10	10
	MTHW	1.5	90 Degree Elbow	2	Cellular Glass	5110	3	5.4
	MTHW	1.5	90 Degree Elbow	2	Cellular Glass	5110	15	27
	MTHW	1.5	In-Line Pump	1.5	Removable Blanket	5110	2	10
	MTHW	1.5	Straight Pipe	2	Cellular Glass	5110	1	1
	MTHW	1.5	Straight Pipe	2	Cellular Glass	5110	35	35
	MTHW	2.5	90 Degree Elbow	2	Cellular Glass	5110	5	9
	MTHW	2.5	Control Valve	1.5	Removable Blanket	5110	1	4.1
	MTHW	2.5	Flange	1.5	Removable Blanket	5110	17	30.6
	MTHW	2.5	Gate Valve	1.5	Removable Blanket	5110	7	35
	MTHW	2.5	In-Line Pump	1.5	Removable Blanket	5110	2	10
	MTHW	2.5	Straight Pipe	2	Cellular Glass	5110	18	18
	MTHW	2.5	Strainer	1.5	Removable Blanket	5110	1	5
	MTHW	3	90 Degree Elbow	2	Cellular Glass	5110	3	5.4
	MTHW	3	Air Scoop	1.5	Removable Blanket	5110	1	4.4
	MTHW	3	Ball valve	1.5	Removable Blanket	5110	1	4.1
	MTHW	3	Flange	1.5	Removable Blanket	5110	1	1.8
	MTHW	3	Straight Pipe	2	Cellular Glass	5110	3	3
	MTHW	3	T Intersection	2	Cellular Glass	5110	3	3.6
Giorgetti Rink/Park	CW	8	Straight Pipe	2	Cellular Glass	3700	250	250
Water Treatment Facility	MTHW	2	90 Degree Elbow	2	Cellular Glass	5110	17	30.6
	MTHW	2	Ball valve	1.5	Removable Blanket	5110	3	12.3
	MTHW	2	In-Line Pump	1.5	Removable Blanket	5110	1	5
	MTHW	2	Straight Pipe	2	Cellular Glass	5110	48	48
	MTHW	2	T Intersection	2	Cellular Glass	5110	2	2.4

Specific tasks noted in table 1.5 are described below:

- Pipe Insulation – un-insulated pipes in the heating hot water systems are leading to unnecessary distribution losses and wasted energy throughout the City of Rutland buildings. The Chilled Water header trench at Giorgetti Rink represents a major opportunity for pipe insulation to save money and improve rink operations. The uninsulated pipes attract frost during operating months leading to increased maintenance to chip ice off ice buildup and waste precious cold temperature to the air instead of feeding the ice rink properly temperature controlled fluids.
- Valve & Fitting Insulation – valves and fittings are difficult components of a mechanical system to insulate and as a result are frequently left un-insulated. These un-insulated or poorly insulated components have the same temperature fluids passing through them as the pipes that are more likely to be insulated; un-insulated components of the distribution system lead to unnecessary distribution losses and wasted energy.
- Tank Insulation – tanks are difficult components of a mechanical system to insulate and as a result are frequently left un-insulated. Un-insulated or poorly insulated tanks or equipment have the same temperature fluids passing through them as the pipes that are more likely to be insulated; un-insulated components of the distribution system lead to unnecessary distribution losses and wasted energy.

Clarifications - Asbestos abatement and hazardous material remediation is excluded. Repairs/replacement of piping and piping ancillaries found to be corroded or rusted or otherwise unacceptable for installation of the insulation other than what is specified in the Scope of Work are excluded.

FIM 5- Facilities Management System-Controls Upgrade/Modifications

JCI will provide turnkey installation labor, materials, engineering, design, and supporting documentation for controls upgrade/modification and project closeout for the facilities listed below

Facilities Included

- City Hall
- Police Department
- Community Center

Scope of Work -

For the facilities included in Scope:

- Provide documentation via fifteen (15) minute or Change of Value (COV) trends for all implemented strategies and schedules to verify they are properly functioning.
- Provide updated graphics and control loop drawings to document the final controls scope of work.
- Provide start-up & testing documentation
- Provide as-built drawings
- Provide system back-up

1) **City Hall:**
   - 1.1) Add Direct Digital Controls (DDC) controls to control and monitor the operation of the boilers and Heat Recovery Air Handling Units (HRAHUs).
   - 1.2) All existing building controls to remain. Only the boilers and HRAHU's identified in item a above will have DDC controls.

2) **Community Center:**
   - 1.3) Implement Demand Control Ventilation (DCV) for the Gym Energy Recovery Unit (ERU) and Ventilation Heat Exchanger (VHE) units 2,3, & 4. Replace existing CO2 sensors. Install new CO2 sensors in the spaces served by the ERU & VHE units. Install new motors & variable speed drives (VSD's) on supply & exhaust fans and associated DDC controls on VHE units 2,3, & 4. Controls to be based on CO2 level to maintain minimum air flow.
   - 1.4) Replace 3-way valves at air handling unit coils with 2-way valves. Leave one (1) 3-way valve in the hot water loop to serve as a by-pass at furthest available & practical location.
   - 1.5) For hot water circulating pumps P-5 & P-6 serving the hot water loop to the Gym ERU units- furnish & install two (2) VSD's to be modulated by pressure from the changes in valve positions at the hot water coils.
   - 1.6) Re-enable & confirm operation of the DCV controls for the Gym ERU.

3) **Police Department:**
   - 1.7) Revise the existing Direct Digital Control (DDC) system to use the heat recovery heat pumps (HRHPs) to provide ventilation and primary heating and cooling with supplemental heat to be provided from the existing hydronic system. Optimize the controls to utilize scheduling, re-set temperatures, demand control ventilation, minimum VAV box settings, and economizer controls.
   - 1.8) Add Direct Digital Control (DDC) controls to control and monitor the operation of the boilers and Hear Recovery Air Handling Units (HRAHUs).

Pumping System-VFD On Hot Water Pumps

1) **Community Center:**

1.9) Convert to existing 5 HP hot water circulation loop to variable speed pumping. Change out most of the 3-way valves with 2-way and control with differential pressure. Convert the Energy Recovery Unit (ERU) loop to variable speed based on valve position and leave the 3- way valve in place.

2) **City Hall:**

1.10) Replace total of six (6) zone pumps with pumps equal to Grundfos Magna with self-modulating speed controls.

Exclusions

1.1) Resolution of existing design, service, and or distribution conditions known or unknown.

1.2) Correction of any existing applicable building code violations and Federal Americans with Disabilities Act (ADA) violations identified by JCI during the execution of the Work. Such violations will be brought to the attention of the Customer for remedy.

1.3) Test and balance of existing air and water HVAC systems unless otherwise noted in a specification FIM Scope of Work.

1.4) Repair or replacement of defective mechanical, controls, and electrical equipment and electrical distribution system, except the equipment described in the Scope of Work (Defective equipment identified by JCI during implementation of the Scope of Work will be brought to the attention of the Customer).

1.5) Repairs/replacement of electrical found to be corroded or rusted or otherwise unacceptable for installation of components or fittings required for installation other than what is specified in the Scope of Work.

1.6) Providing Ethernet ports for buildings or any infrastructure hardware/software needed to connect the building to the base IT network, Connection to the Owners Wide-Area Network to be coordinated with Client's IT Services.

1.7) The Owner will provide, free of charge, high-speed Internet connections and the required Virtual Private Network (VPN) services to the Contractor, for monitoring, tuning, and making system changes to the building automation system connected to the HVAC Systems or Equipment.

1.8) Phone line use or new fiber installation, if required.

1.9) Non-Johnson Controls software upgrades (such as Microsoft, Norton Antivirus, etc.) for the Customer's front-end unless otherwise noted in the Scope of Work.

1.10) Ongoing annual fees associated with licenses and access fees.

FIM 6- Mechanical System Upgrades

JCI will provide turnkey installation labor, materials, engineering, design, and supporting documentation for mechanical system upgrades and for project closeout for the facilities listed below.

Facilities Included

- City Hall
- Police Department
- Water Treatment Facility
- Recreation Center
- Waste Water Treatment Plant
- Community Center

Scope of Work

Air Handling Unit / Rooftop Unit Replacement

Police Department

1.1) Replace the two (2) RTUs with two (2) 20-ton RT Heat Recovery Heat Pumps equal to Aaon RNA-020-C-A-8-GJB0C.

1.2) Provide necessary updates to controls in coordination with FIM 5 for the new equipment

1.3) Provide air and water rebalancing for new units.

1.4) All existing fire alarm system duct smoke detectors to remain and re-connected to the new RTU's. New duct smoke detectors are excluded from the scope of work. Once the new RTU's are installed the existing duct smoke detectors will be reinstalled. The existing duct smoke detectors shall be tested to verify that they are fully functional & operational to shut down the RTU; The duct smoke detectors shall also be tested back to the fire alarm control panel (FACP). Results of the fire alarm system testing shall be submitted to the City of Rutland fire department.

Water Treatment Facility

1.5) Replace existing Daikin HVAC AHU with equally sized new unit McQuay LSL106 or equivalent.

Domestic Hot Water Heater Replacement

Police Station

1.6) Replace the existing domestic hot water heater with an equal capacity 80 gallon Heat Pump water heater.

Giorgetti Rink

1.7) Install new 40-gallon heat pump water heater (HPWH) and pipe into existing 500 gallon storage tank

1.8) Finalize design to use the existing oil-fired hot water heater as backup during high demand periods of use

Community Center

1.9) Install two (2) 80-gallon HPWHs to replace the 500-gallon indirect water heater.

1.10) Abandon the existing 500 gallon unit in place

City Hall

1.11) Replace the existing DHW units with two (2) 80-gallon HPWH in the two boiler rooms- one in each mechanical room.

Recreation Center

1.12) Install a 40-gallon HPWH to replace existing hot water heating equipment.

Heating/Cooling System-Air Source Heat Pumps

Fire Department

1.13) Install four (4) heat pump split systems (Mitsubishi) or approved in Chief's Office, Operations Office, Team Room, and Laundry Room at the Fire Station.

Quantity	Location	Manufacturer	Capacity (BTU's)
1	Chiefs Office	*Mitsubishi	12,000
1	Team Room	*Mitsubishi	12,000
1	Laundry Room	*Mitsubishi	12,000
1	Operations Office	*Mitsubishi	12,000

*Mitsubishi or approved equal

1.14) Outdoor unit location to be determined during the final design.

1.15) Unit controls will be stand-alone and not BMS networked.

Heating System-Boiler Replacement

Waste Water Treatment Plant

1.16) Replace existing Weil-McLain boiler model # A/B-468 150,000 BTU/hr with similar size boiler.

1.17) Existing pumps to remain

1.18) Unit control will continue to be local based on temperature

Pumping System- Variable Frequency Drives (VFDs) on Hot Water (HW) Pumps

City Hall

1.19) Replace four (4) pumps in NE Mechanical Room & two (2) pumps in SW Mechanical room with pumps equal to Grundfos Magna with self-modulating speed controls. Most control valves in the systems are already 2-way so differential control within the pumps will self-regulate their speed.

Recreation Center

1.20) Replace existing eight (8) zone pumps & two (2) re-circulating pumps with Grundfos pumps including self-regulating speed controls utilizing internal proportional pressure.

Exclusions:

1.1) Repair or replacement of defective equipment, other than the equipment specifically described in the FIM description. Johnson Controls will identify the location of defective equipment and notify Customer in writing.

1.2) Repair or replacement of defective mechanical, controls, and electrical equipment and electrical distribution system, except the equipment described in the Scope of Work (Defective equipment identified by JCI during implementation of the Scope of Work will be brought to the attention of the Customer).

1.3) Repairs/replacement of insulation, piping, electrical or ductwork found to be corroded or rusted or otherwise unacceptable for installation of components or fittings required for installation other than what is specified in the Scope of Work.

1.4) Resolution of existing design, service, and or distribution conditions known or unknown.

1.5) Correction of any existing applicable building code violations and Federal Americans with Disabilities Act (ADA) violations identified by JCI during the execution of the Work. Such violations will be brought to the attention of the Customer for remedy.

1.6) Temporary space conditioning unless otherwise identified in FIM Scope of Work.

1.7) Test and balance of existing air and water HVAC systems unless otherwise noted in a specification FIM Scope of Work.

1.8) WWTP Boiler replacement does not include flue replacement or relining. Existing flue to remain.

1.9) Duct cleaning and coil cleaning unless otherwise identified in FIM Scope of Work.

1.10) Excludes water quality testing, chemical feeder equipment & accessories, and re-treatment of systems affected by this scope of work including ongoing treatment.

FIM 7- Street Lighting

JCI will provide turnkey installation labor, materials, engineering, design, and supporting closeout documentation for street lighting system utilizing LED retrofit replacements on the existing street light poles for the quantities listed in the tables below:

Table 1.6 Existing

Qty.	Description	System Watts	Existing Watts	Connected kW
215	100W HID	138	29,670	29.67
15	250W HID	295	4,425	4.43
36	400W HID	460	16,560	16.56

Table 1.7 Proposed

Qty.	Description	System Watts	Proposed Watts	Connected kW
215	27W LED Retrofit	27	5,805	5.81
15	63W LED Retrofit	63	945	0.95
36	100W LED Retrofit	100	3,600	3.60

NOTE: Scope of work includes disposal of HID ballasts removed during the performance of this scope of work.

Exclusions

- Existing LED fixtures that have already been converted. This scope of work addresses existing HID fixtures only
- Light level testing- customer work done to date has utilized these wattage replacements. JCI intends to use the same product already installed by Rutland City on existing LED fixtures and does not warrant or plan to measure light levels provided by new fixtures.

ASSURED PERFORMANCE GUARANTEE

I. PROJECT BENEFITS

A. Certain Definitions. For purposes of this Agreement, the following terms have the meanings set forth below:

Annual Project Benefits are the portion of the projected Total Project Benefits to be achieved in any one year of the Guarantee Term.

Annual Project Benefits Realized are the Project Benefits actually realized for any one year of the Guarantee Term.

Annual Project Benefits Shortfall is the amount by which the Annual Project Benefits exceed the Annual Project Benefits Realized in any one year of the Guarantee Term.

Annual Project Benefits Surplus is the amount by which the Annual Project Benefits Realized exceed the Annual Project Benefits in any one year of the Guarantee Term.

Baseline is the mutually agreed upon data and/or usage amounts that reflect conditions prior to the installation of the Improvement Measures as set forth in Section IV below.

Guarantee Term will commence on the first day of the month next following the Substantial Completion date and will continue through the duration of the M&V Services, subject to earlier termination as provided in this Agreement.

Installation Period is the period beginning on JCI's receipt of Customer's Notice to Proceed and ending on the commencement of the Guarantee Term.

Measured Project Benefits are the utility savings and cost avoidance calculated in accordance with the methodologies set forth in Section III below.

Non-Measured Project Benefits are identified in Section II below. The Non-Measured Project Benefits have been agreed to by Customer and will be deemed achieved in accordance with the schedule set forth in the Total Project Benefits table below. Customer and JCI agree that: (i) the Non-Measured Project Benefits may include, but are not limited to, future capital and operational costs avoided as a result of the Work and implementation of the Improvement Measures, (ii) achievement of the Non-Measured Project Benefits is outside of JCI's control, and (iii) Customer has evaluated sufficient information to conclude that the Non-Measured Project Benefits will occur and bears sole responsibility for ensuring that the Non-Measured Project Benefits will be realized. Accordingly, the Non-Measured Project Benefits shall not be measured or monitored by JCI at any time during the Guarantee Term, but rather shall be deemed achieved in accordance with the schedule set forth in the Total Project Benefits table below.

Project Benefits are the Measured Project Benefits plus the Non-Measured Project Benefits to be achieved for a particular period during the term of this Agreement.

Total Project Benefits are the projected Project Benefits to be achieved during the entire term of this Agreement.

B. Project Benefits Summary. Subject to the terms and conditions of this Agreement, JCI guarantees that Customer will achieve a total of $5,594,910 in Utility Cost Avoidance and $388,633 in Operations and Maintenance Cost Avoidance.

Total Project Benefits

Table 2.1

Year	Utility Cost Avoidance*	Operations & Maintenance Cost Avoidance**	Rebates/Incentives	Total Project Benefits
1	$ 215,140	$ 13,051	$ 500,000	$ 728,191
2	$ 220,884	$ 13,573		$ 234,457
3	$ 226,783	$ 14,116	$ 820,000	$ 1,060,899
4	$ 232,843	$ 14,681		$ 247,524
5	$ 239,068	$ 15,268		$ 254,335
6	$ 245,462	$ 15,878		$ 261,340
7	$ 252,030	$ 16,514		$ 268,544
8	$ 258,777	$ 17,174		$ 275,951
9	$ 265,708	$ 17,861		$ 283,569
10	$ 272,828	$ 18,576		$ 291,404
11	$ 280,142	$ 19,319		$ 299,461
12	$ 287,656	$ 20,091		$ 307,747
13	$ 295,375	$ 20,895		$ 316,270
14	$ 303,304	$ 21,731		$ 325,035
15	$ 311,450	$ 22,600		$ 334,051
16	$ 319,819	$ 23,504		$ 343,323
17	$ 328,417	$ 24,444		$ 352,861
18	$ 337,250	$ 25,422		$ 362,672
19	$ 346,325	$ 26,439		$ 372,764
20	$ 355,648	$ 27,496		$ 383,145
TOTAL	**$ 5,594,910**	**$ 388,633**	**$ 1,320,000**	**$ 7,303,542**

* Utility Cost Avoidance is a Measured Project Benefit. Non-Solar Utility Cost Avoidance figures in the table above are based on anticipated 3% increase in unit energy costs as set forth in the Baseline Energy Rate tables. Solar cost avoidance is to use a 2.28% increase. Escalation starts in Year 1 to account for project timeline.

** Operation & Maintenance (O&M) Project Benefit. O&M Cost Avoidance figures in the table will be non-measured and deemed as achieved once the project is implemented.

Within ninety (90) days of the commencement of the Guarantee Term, JCI will calculate the Measured Project Benefits achieved during the Installation Period plus any Non-Measured Project Benefits applicable to such period and advise Customer of same. Any Project Benefits achieved during the Installation Period may, at JCI's discretion, be allocated to the Annual Project Benefits for the first year of the Guarantee Term. Within ninety (90) days of each anniversary of the commencement of the Guarantee Term, JCI will calculate the Measured Project Benefits achieved for the applicable year plus any Non-Measured Project Benefits applicable to such period and advise Customer of same.

Customer acknowledges and agrees that if, for any reason, it (i) cancels or terminates receipt of M&V Services, (ii) fails to pay for M&V Services in accordance with Schedule 4, (iii) fails to fulfill any of its responsibilities necessary to enable JCI to complete the Work and provide the M&V Services, or (iv) otherwise cancels, terminates or materially breaches this Agreement, the Assured Performance Guarantee shall automatically terminate and JCI shall have no liability hereunder.

C. Project Benefits Shortfalls or Surpluses.

(i) *Project Benefits Shortfalls*. If an Annual Project Benefits Shortfall occurs for any one year of the Guarantee Term, JCI shall, at its discretion and in any combination, (a) set off the amount of such shortfall against any unpaid balance Customer then owes to JCI, (b) where permitted by applicable law, increase the next year's amount of Annual Project Benefits by the amount of such shortfall, (c) pay to Customer the amount of such shortfall, or (d) subject to Customer's agreement, provide to Customer additional products or services, in the value of such shortfall, at no additional cost to Customer.*

(ii) *Project Benefits Surpluses*. If an Annual Project Benefits Surplus occurs for any one year of the Guarantee Term, JCI may, at its discretion and in any combination, (a) apply the amount of such surplus to set off any subsequent Annual Project Benefit Shortfall during the Guarantee Term, or (b) bill Customer for the amount of payments made pursuant to Section C(i)(c) above and/or the value of the products or services provided pursuant to clause C(i)(d) above, in an amount not to exceed the amount of such surplus.*

(iii) *Additional Improvements*. Where an Annual Project Benefits Shortfall has occurred, JCI may, subject to Customer's approval (which approval shall not be unreasonably withheld, conditioned, or delayed), implement additional Improvement Measures, at no cost to Customer, which may generate additional Project Benefits in future years of the Guarantee Term.

*In the event JCI is providing an Assured Performance Guarantee under Schedule 2, Annual Project Benefits Shortfalls and Annual Project Benefits Surpluses under each such Schedule shall be reconciled against one another.

PROJECT UTILITY COST AVOIDANCE BENEFITS

The Utility Cost Avoided Benefits shall change each year of the Guarantee Term based on the applied utility rates as defined in the Baseline Calculation and Utility Rates in Schedule 2, Section IV. Table 2.2 is a summary of the utility cost avoidance by FIM for the first year.

Table 2.2

		Projected Utility Cost Avoidance by FIM						
		Energy						
		Electric Energy		Electric Demand		Fuel Oil		
FIM #	Measure	kWh		kW		MMBTU		Total Cost Avoidance
		Dollars	Units	Dollars	Units	Dollars	Units	
1	Renewable Energy- Photovoltaic Generation	$ 94,958	516,124	$ -	-	$ 766	34	**$95,725**
2A	Lighting - Interior Retrofit	$ 10,106	84,809	$ 5,181	341	$ -	-	**$15,287**
2B	Lighting - Exterior Retrofit	$ 2,758	19,570	$ -	-	$ -	-	**$2,758**
3A	Building Envelope - Weatherization	$ 28	247	$ -	-	$ 10,385	471	**$10,413**
3B	Building Envelope - Attic Insulation	$ 743	6,872	$ -	-	$ 4,337	196	**$5,080**
4	Heating System - Pipe and Valve Insulation	$ 1,714	15,875	$ -	-	$ 2,893	131	**$4,607**
5	Facility Management System	$ 6,524	55,246	$ -	$ -	$ 8,788	396	**$15,312**
6A	Air Handling Unit/RTU Replacement	$ (4,769)	(43,965)	$ -	-	$ 9,594	436	**$4,824**
6B	Pumping System - VFD on HW Pumps	$ 2,641	23,655	$ -	-			**$2,641**
6C	Heating System - Boiler Replacement	$ -	-	$ -	-	$ 15,069	684	**$15,069**
6D	DHW Replacement	$ (7,037)	(60,273)	$ (7,895)	(540)	$ 22,853	1,032	**$7,921**
6E	Heating/Cooling System - Air Source Heat Pumps	$ -	-	$ -	-	$ -	-	**$0**
7	Street Lighting	$ 30,616	158,589	$ -	-	$ -	-	**$30,616**
	Total	**$138,283**	**776,749**	**($2,714)**	**-199**	**$74,684**	**3,381**	**210,253**

Table 2.3 is a summary of the cost avoidance by Facility for the first year

Table 2.3

Facility	Projected Utility Cost Avoidance by Facility						
	Energy						
	Electric Energy		Electric Demand		Fuel Oil		Total
	kWh		kW		MMBTU		
	Dollars	Units	Dollars	Units	Dollars	Units	Dollars
City Hall	$ 3,777	32,713	$ 220	12	$ 6,765	308	$ 10,763
Fire Dept.	$ 4,465	24,273	$ -	-	$ 1,929	88	$ 6,394
Giorgetti Rink/Park	$ 36,576	208,144	$ -	-	$ 2,781	126	$ 39,358
Police Dept.	$ 8,622	53,596	$ 1,868	38	$ 17,342	788	$ 27,832
Water Treatment Facility	$ 338	2,051	$ -	-	$ 589	27	$ 927
Recreation Center	$ 22,146	124,190	$ (1,181)	(59)	$ 6,361	286	$ 27,326
DPW Bldg	$ 845	6,550	$ -	-	$ 1,989	90	$ 2,834
Waste Water Treatment Plant	$ (1,299)	(11,297)	$ (1,906)	(108)	$ 19,870	903	$ 16,665
Water Dist. Facility	$ 748	3,823	$ -	14	$ 395	18	$ 1,143
City Streets	$ 30,616	158,589	$ -	-	$ -	-	$ 30,616
Total	**$ 138,283**	**776,749**	**$ (2,714)**	**(199)**	**$ 74,684**	**3,381**	**210,253**

II. NON-MEASURED PROJECT BENEFITS

The Project Benefits identified below shall be Non-Measured, as defined in Schedule 2, Section 1.A above. The amount of the Non-Measured Energy Benefits shall change each year of the Guarantee Term based on the applied utility rates as defined in the Baseline Calculation and Utility Rates presented in Schedule 2, Section IV.

Table 2.4

Non-Measured Energy Cost Avoidance			
M&V Option	**FIM #**	**FIM Description**	**First Year Projected Benefits**
NM	3A	Building Envelope - Weatherization	$ 10,413
NM	3B	Building Envelope - Attic Insulation	$ 5,080
NM	4	Heating System - Pipe and Valve Insulation	$ 4,607
NM	6B	Pumping System - VFD on HW Pumps	$ 2,641
Total Non-Measured Cost Avoidance			**$ 22,741**

Operational & Maintenance (O&M) Cost Avoidance

The O&M savings are based on the scope of work as well as discussions with the customer. Customer agrees that the O&M Project Benefit are reasonable and supportable, and that the installation of the lighting will enable the customer to take actions that will result in the achievement of such O&M Project Benefits.

Lighting material savings result from savings due to older lighting systems having to be replaced frequently. New LED lighting equipment with longer rated life expectancy (as compared to existing lighting technology) will result in lighting material cost avoidance.

Mechanical & Controls operational savings result from newly replaced equipment requiring less repairs, emergency calls, and service calls. Carrying an assumed $104 per hour for 5 hours per site for controls and varied time on mechanical equipment- community center 5 hours, WTF 10 hours, Police 20 hours.

Table 2.5

Operations & Maintenance Avoidance	City Hall	Police Department	Recreation Center	Community Center	Dept. of Public Works	Water Treatment Facility	Water Distribution Facility	Streetlights	TOTAL
Mechanical Upgrades	$ -	$ 2,080	$ -	$ 520	$ -	$ 1,040	$ -	$ -	**$ 3,640**
Controls Upgrades	$ 520	$ 520	$ 520	$ -	$ -	$ -	$ -	$ -	**$ 1,560**
Lighting Upgrade	$ 1,233	$ 3,127	$ 719	$ 214	$ 104	$ -	$ 373	$ 2,080	**$ 7,851**
TOTAL	**$ 1,753**	**$ 5,727**	**$ 1,239**	**$ 734**	**$ 104**	**$ 1,040**	**$ 373**	**$ 2,080**	**$ 13,051**

Non-Recurring Non-Guaranteed Benefits:

Utility Rebates: $500,000

JCI will assist the Customer in applying for rebate incentives through the utility and the Vermont Municipal Energy Resilience Program "MERP". This includes submitting application forms and data on behalf of the Customer as required and following up with the program administrators to answer any questions or provide additional information.

Note: Rebates are not guaranteed.

IRA Direct Pay

ITC Direct Payment under IRA:

Non-Guaranteed Incentives: $820,000

JCI and Customer acknowledge that the Solar PV FIMs are eligible for the Investment Tax Credit (ITC) under the Inflation Reduction Act (IRA). Pursuant to the IRA, Customer as a tax-exempt entity is eligible for tax credits from the federal government and may elect to receive direct payment of the ITC associated with the solar PV .

Customer is eligible for an ITC of approximately $820,000 attributable to implementation of the FIMs as specified in this Agreement. JCI in no way guarantees receipt of any ITC to Customer nor shall JCI have any liability for failure of Customer to receive any ITC associated with this Agreement.

In the event Customer elects to pursue the ITC, Customer must timely satisfies certain responsibilities and conditions to eligibility under the IRA, and other applicable law. JCI is not responsible for delays in Customer's receipt of a direct payment, ITC recapture, unavailability of federal funds, or changes in the ITC program or other laws, regulations, guidance, or interpretations. Customer agrees to take such action necessary for achievement of an ITC direct payment as a result of the Project and provide JCI information regarding Customer's receipt of ITC funds upon request for measurement and verification. Customer acknowledges that its receipt of an ITC direct payment as a result of the Project, may vary from estimated amounts based on factors that include, without limitation, Customer's eligibility for bonus amounts, use of tax-exempt financing, and forthcoming federal guidance, which are not the responsibility of JCI.

JCI shall assist the Customer, as reasonably requested, in providing information about Project implementation for claiming an ITC and securing a direct payment should Customer desire to claim the ITC. The submittal and contents of documentation to claim an ITC and secure a direct payment, including but not limited to, pre-registration, tax, or compliance documentation, are the responsibility of Customer. Customer acknowledges that it is responsible for computing and verifying the ultimate ITC amount. The Parties acknowledge that JCI will not provide tax, accounting, legal, or municipal security advice.

Note: IRA is not guaranteed.

FIM-3A Weatherization

FIM-3A Weatherization	City Hall	Fire Dept.	Giorgetti Rink/Park	Police Dept.	Water Treatment Facility	Recreation Center	Waste Water Treatment Plant	Community Ctr.	Water Dist. Facility

Reduced thermal losses are the result of building envelope improvements. Infiltration/exfiltration is the rate of uncontrolled air exchange that occurs through unintentional building openings. Increasing the R-Value of weather-stripping, caulk, and foam products will be used to prevent structural leakage/thermal losses which reduce the amount of energy needed to maintain indoor building space temperatures.

Measurement & Verification Plan – Building Envelope (One-time)

Pre-Installation: Re-check building envelope audit, recommendations, and calculation variables. Take pre-retrofit photographs of areas targeted for building envelope improvements, measuring open cracks in sample set of doors.

Post-Installation: Verify that scope of work has been completed. Conduct a one-time visual inspection of envelope improvements, photograph and/or thermal imaging, if season permits for pre-retrofit sample areas with re-measurement of cracks/weatherstripping and discuss with operational staff to investigate to verify improvement /performance. Savings will be based on engineering calculations and assumptions in detailed energy audit. Energy savings will be calculated using the utility rates as defined in Section IV Baseline Calculations and Utilities.

Duration of Measurement/Verification: One-time pre/post measurement/verification

Table 2.6

Assumptions and Constants:		City Hall	Fire Dept.	Giorgetti Rink/Park	Police Dept.	Water Treatment Facility	Recreation Center	Waste Water Treatment Plant	Community Ctr.	Water Dist. Facility
Post Retrofit Space Temp Setpoints	Heating Occupied	70	70	70	70	70	70	70	70	70
	Heating UnOccupied	65	65	65	65	65	65	65	65	65
	Cooling Occupied	72	72	72	72	72	72	72	72	72
	Cooling UnOccupied*	75	98	98	75	98	75	98	75	98
Avg Wind Speed mph		3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
Boiler Efficiency (%)		80%	80%	80%	78%	80%	80%	78%	80%	80%
Percent of Space Cooled		90%	20%	100%	80%	5%	3.0%	1%	90%	1%
Cooling System Efficiency (kW/ton)		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Pre-Retrofit	Opening (Sq. In.)	788	234	138	825	115	772	107	1,242	184
Stack Coefficient ($CFM^2/(in^4 \times F)$)		0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Wind Coefficient ($CFM^2/(in^4 \times mph^2)$)		0.012	0.012	0.012	0.012	0.012	0.009	0.009	0.012	0.009
Correction Factor**		50%								

*High temperature cooling set point during unoccupied times indicates system is effectively off

**Correction Factor: safety factor applied to the crackage infiltration calculation

Table 2.7

Summary of Scope	Typical Crack Opening Size (In.)
Attic Air Barrier Retrofit	1/24 In
Buck Frame Air Sealing	1/24 - 1/6 In
Caulking	1/200 - 1/32 In
Door Weather Striping	1/12 In
Overhang Air Sealing	1/12 In
Roof-Wall Intersection Air Sealing	1/16 - 1/10 In
Wall Air Sealing	1/16 In.

Weatherization Calculation

CFM = Correction Factor x {Area (sq.in.) x [(Stack Coeff. x Temp. Diff.) + (Wind Coeff. x Wind Speed^2)]$^{1/2}$}

Note: Calculated CFM is only for leakage due to surveyed crackage, not representative of total building leakage. Existing building leakage assumed to be less than a "Tight Building" (0.4 ACH)

Where:

Area (sq.in.) = Sum of Description items: {Qty x Length (ft) x Crackage (ft)} / 144 (sq.in/sq. ft.) (Table 2.7
Stack & Wind Coefficients = (Table 2.6)

Heating: Q (MMBtu for both Unoccupied and Occupied hours) = (1.08 x CFM x (Bin Temp - Setpoint) x Bin Hours) x 1/Boiler Eff) / 1,000,000

Cooling: Q (kWh for Unoccupied and Occupied Hours) = (1.08 x CFM x (Bin Temp - Setpoint) x Bin Hours) x 1 ton /12,000 Btu/hr x Clg. Eff. kW/ton x % of Space Cooled

Proposed: 99% Reduction in CFM (weatherization scope of work only, not entire building)
Savings = Existing - Proposed

The savings calculations, assumptions, and engineering standards used to determine building envelope energy savings during project development will be used in each performance period to calculate annual cost avoidance for this measure. Any assumptions used in the calculations, adjustments made to the baseline, and/or performance measurements recorded during a period, will be applied in the annual cost avoidance calculations.

FIM-3B Attic Insulation

FIM-3B Attic Insulation	Community Ctr.	Giorgetti Rink/Park

Reduced thermal losses are the result of building envelope improvements which includes the addition of attic insulation to areas which are deficient. Increasing the R-Value of these areas by adding insulation will prevent/improve structural leakage/thermal losses which reduce the amount of energy needed to maintain indoor building space temperatures.

Measurement & Verification Plan (One-time)

Pre-Installation: Re-check building envelope audit, recommendations, and calculation variables. Take pre-retrofit photographs of areas targeted for this building envelope improvement, verify and/or measure existing attic insulation, if any.

Post-Installation: Verify that scope of work has been completed. Conduct a one-time visual inspection of attic insulation improvements, photograph pre-retrofit sample areas with re-measurement of insulation levels, and discuss with operational staff to investigate to verify improvement /performance. Energy savings will be calculated using the Energy Rate as defined in Section IV Baseline Calculations and Utilities.

Duration of Measurement/Verification: One-time pre/post measurement/verification

Existing Cooling. Gain (In mmBtu's) = (Avg. OA Temp. - Summer Inside Setpoint) x SqFt. x Existing U Value x Total Bin Hours/1,000,000

Proposed Cooling. Gain (In mmBtu's) = (Avg. OA Temp. - Summer Inside Setpoint) x SqFt. x Proposed U Value x Total Bin Hours/1,000,000

Existing Heating. Loss (In mmBtu's) = (Avg. OA Temp. - Winter Inside Setpoint) x SqFt. x Existing U Value x Total Bin Hours/1,000,000

Proposed Heating. Loss (In mmBtu's) = (Avg. OA Temp. - Winter Inside Setpoint) x SqFt. x Proposed U Value x Total Bin Hours/1,000,000

Definition: U= 1/R

Table 2.8

Assumptions and Constants	Community Center	Waste Water Treatment	Giorgetti Rink/Park
Attic Square Feet	11,500	84	34,680
% Space Cooled	100%	2.0%	100.0%
U of Existing Attic (BTU/ft2/hr/F)	0.0526	1.00	0.1111
U of Proposed Attic (BTU/ft2/hr/F)	0.0392	0.33	0.052
Winter Inside Set Point (Occ, Un Occ)	70, 65	70, 65	45, 45
Summer Inside Set Point (Occ, Un Oc	72, 75	72, 98	45, 45

FIM-4 Pipe and Valve Insulation

FIM-4 Pipe and Valve Insulation	City Hall	Fire Dept.	Giorgetti Rink/Park	Community Ctr.

Savings are realized through reduced thermal losses within heating distribution systems. The heating systems have locations with pipe lengths and fittings that are un-insulated resulting in heating losses (i.e. heating unintended spaces and having to produce more heat to meet space/zone temperature set point). By insulating heating system pipes and valves, more heat is delivered to the intended spaces resulting in less boiler operation.

Measurement & Verification Plan (One time)

Pre-Installation: Re-check audit. Measure linear footages of exposed piping and quantities of uninsulated valves, bonnets, flanges, and pumps in sample of areas. Conduct thermal imaging in selected areas if seasonality possible.

Post-Installation: Verify that approved scope of work has been completed and that the insulation is properly installed. One time measurement of linear feet of pipe insulation installed in sampled areas. Conduct thermal imaging in selected areas if seasonality possible. Field verification to verify counts and linear footages as stated in the scope and adjust calculations based on post retrofit audit.

Duration of Measurement/Verification: One-time pre/post measurement/verification

Table 2.9

Assumptions & Constants	City Hall	Fire Dept	Giorgetti Rink/Park	Community Center
Boiler Efficiency (%)	80%	80%	80%	80%
DHW Surface Temp (F)	110	110	110	110
Heating HW Surface Temp (F)	160	160	160	180
Ambient Temp (F)	75	75	75	75
Eq Surface Area w/Out Insulation (sq ft)	15.58	93.47	145.10	66.25
Eq Surface Area w/Insulation (sq ft)	37.40	236.39	409.93	143.51

Pipe & Valve Insulation Calculations

Bare Heat Losses: Qbar = (Ts-Ta) / Rs

Insulated Heat Losses: Qins = (Ts-Ta) / (r2(ln(r2/r1)/k) + Rs)

Savings = (Qb x Ab-Qix Ai) x hr / eff/10^6

Where:

Rs (Bare Pipe surface) = 0.46 hr x ft^2 x F/Btu

Rs (Insul. Pipe surface) = 0.53 hr x ft^2 x F/Btu

*k (insulation / Thermal conductivity) = 0.26 Btu x in/hr xft^2*F*

Source: Energy Management Handbook, 8th Ed., 2013

R_s (bare pipe)	Surface resistance	0.46	$hr*ft^2*F/Btu$
R_s (insul. pipe)	Surface resistance	0.53	$hr*ft^2*F/Btu$
k (insulation)	Thermal conductivity	0.26	$Btu*in/hr*ft^2*F$
Bare Heat Losses	$Q_b=(T_s-T_a)/R_s$		$(Btu/(hr*ft^2))$
Insulated Heat losses	$Q_i=(T_s-T_a)/(r_2(\ln(r_2/r_1)/k)+R_s)$		$(Btu/(hr*ft^2))$
Savings =	$(Q_b \times A_b-Q_i \times A_i) \times hr / eff/10^6$		MMBtu/yr

Where:

T_s = Surface Temp (deg. F)

T_a = Ambient Temp (deg. F)

R_1 = Pipe outer diameter (in)

R_2 = Insulation outer radius (in)

Q_b = Bare pipe heat loss $(Btu/(hr*ft^2))$

Q_i = Insulated pipe heat loss $(Btu/(hr*ft^2))$

A_b = Equiv. Surface area without insulation (ft^2)

A_i = Equiv. Surface area of insulation (ft^2)

FIM-6B Pumping System – VFD on HW Pumps

FIM-6B Pumping System - VFD on HW Pumps	City Hall	Community Ctr.

VFDs regulate/modulate voltage to electric motors to control AC motor speed. In periods when maximum/rated motor power to perform the work is not required, a VFD effectively reduces the motor speed to match motor output load requirements.

The scope of work provided for the heating systems at the facilities above include the installation of VFDs which will be coupled with premium efficiency and compatible motors. The new equipment associated with this FIM will be connected to the Facility Management System (FMS).

Operational Verification Plan – VFDs & Motors

Pre-Installation: Baseline energy usage was determined for the ventilation and heating system motors and pumps using nameplate data, operation observation, and staff discussions about existing motor & pump operations.

Post-Installation: Verify that the scope of work has been properly implemented and that the variable frequency drive controls are fully functional. Check VFD control panel and verify motor operation at various speeds. Through the facility management system, trend VFD output percent 'On' and setpoint during reporting period and use values to track VFD operations.

VFD on Pumps Calculations

Baseline Usage (kWh) = ((% Flow^ 0.7) x Existing kW) x Bin Hours
Existing kW = Motor HP x 0.746 x (motor loading/motor efficiency)

Proposed Usage (kWh) = (Proposed kW) x bin hours
Proposed kW = Proposed Operating kW^2.5) x VFD % Speed
Proposed Operating kW = Existing KW/Net Efficiency ((New Motor Efficiency/Existing Motor Efficiency) x VFD Efficiency)

VFD Savings = (Baseline Usage – Proposed Usage) x Baseline kWh Rate

FIM-6D DHW Replacement

FIM-6D DHW Replacement	City Hall	Police Dept.	Recreation Center	Waste Water Treatment Plant	Community Ctr.

Measurement & Verification Plan- One Time

Pre-Installation: Re-check audit Fuel Oil DHW heater currently in-place. Through review of nameplate data, equipment information, and interviews of facility personnel, developed electric demand (kW) and electric use (kWh), and calculated fuel oil savings. Baseline runtime is determined through customer.

Post-Installation: Verify that scope of work has been completed and that the electric heat pump DHW heater and storage tank is properly installed. Record any changes to the scope and adjust savings if necessary.

Duration of Measurement: One-time inspection.

Savings Calculations

FOCA$ = FO$ - E$ - ED$
FO$ = BFU x FOR
E$ = EU * IER
ED$ = AD*DR
EU = (BFU-FS) *1,000,000/3412

Where:

FOCA$:	Fuel Oil Cost Avoidance ($)
FO$:	Fuel Oil Cost
E$:	Electric Cost
EU	Electric Use
1,000,000:	BTUs per MMBtu
3,412:	BTUs/ kWh
IER:	Incremental Electrical Rate ($/kWh)
DR:	Electric Demand Rate ($/kW)
AD:	Annual Demand (540kW)
FOR:	Fuel Oil Rate ($/MMBtu)
BFU:	Baseline Fuel Oil Usage (1,032 MMbtu)
FS:	Fuel Savings

FIM-6E Air Source Heat Pumps

FIM-6E Heating/Cooling Air Source Heat Pumps	Fire Dept.

Post-Installation: Verify the approved Scope of Work has been installed..

Duration of Measurement: Annual inspection.

No savings associated with this measure.

III. MEASUREMENT AND VERIFICATION METHODOLOGIES

The following is a brief overview of the measurement and verification methodologies applicable to the Improvement Measures set forth below. JCI shall apply these methodologies, as more fully detailed in the guidelines and standards of the 2016 International Measurement and Verification Protocol (IPMVP) in connection with the provision of M&V Services hereunder.

Option A
Partially Measured Retrofit Isolation

Measured Project Benefits are determined by partial field measurement of the energy use of the system(s) to which an Improvement Measure was applied separate from the energy use of the rest of the facility. Measurements will be short-term with only one-time measurements before and after the Installation Period.

Partial measurement means that some but not all parameters will be measured. Careful review of the design and installation of Improvement Measures is intended to demonstrate that the stipulated values fairly represent the probable actual values. Agreed-upon values will be shown in the measurement and verification plan, along with analysis of the significance of the error they may introduce. Engineering calculations using short-term pre and post-retrofit measurements and stipulations are used to calculate Measured Project Benefits for the duration of the Guarantee Term.

Measured Project Benefits from the following Improvement Measures will be calculated using Option A:

Table 2.10

Measured Energy Cost Avoidance			
M&V Option	**FIM #**	**ECM Description**	**First Year Projected Benefits**
A	2A	Lighting - Interior Retrofit	$ 15,287
A	2B	Lighting - Exterior Retrofit	$ 2,758
A	6A	Air Handling Unit/RTU Replacement	$ 4,824
A	6C	Heating System - Boiler Replacement	$ 15,069
A	6D	DHW Replacement	$ 7,921
A	7	Street Lighting	$ 30,616
Total Measured Cost Avoidance			**$ 76,475**

FIM-2A & 2B Lighting Retrofit

FIM-2A Interior Lighting Retrofit	City Hall	Police Dept.	Recreation Center	Community Ctr.	Water Dist. Facility
FIM-2B Exterior Lighting Retrofit	City Hall	Police Dept.	Recreation Center	DPW Bldg	Water Dist. Facility

Existing interior and exterior lighting equipment at various locations within the City's buildings will be upgraded to improve lighting equipment efficiency (i.e. using less energy to produce similar light output). The lighting retrofit design incorporates energy efficient LED lamps, ballasts, and fixtures where the existing fixture warrants a replacement.

Measurement & Verification Plan (One-time)

Pre-Installation: JCI completed a detailed audit of the lighting equipment in each building and quantified fixture wattage power use in kilowatts (kW) using available nameplate information as well as taking wattage measurements on a representative sample of fixtures at each facility. Annual Burn Hours (ABH) for interior lighting usage groups (i.e. classrooms, offices, hallways) and annual kW was determined through source documentation and customer.

Post-Installation: Verify that approved scope of work has been completed. Record any changes to the scope and adjust savings based on as-built lighting. On interior lighting equipment, perform a one-time post installation circuit wattage measurement on a representative sample of installed interior fixture combinations where a quantity of 50 or more of the same type of fixtures will be tested using a 90% confidence and 20% precision level (see Table 2.11 for sample size guidelines). Use post retrofit wattage measurement to adjust savings estimates for all like fixtures, adjusted savings values will be used in post retrofit calculations. Savings will be based on engineering calculations and audit consumption details in Attachment 7 Lighting Design.

Duration of Measurement/Verification: One-time pre/post instantaneous measurement

Sample Size Determinations

Minimum post installation sample sizes will be either the sample size listed in Table 2.11 or the sample sizes will be large enough to achieve 90% confidence & 20% precision. JCI will execute wattage sampling from logical project site groupings and/or usage groups rather than individual building level sampling. See Table 2.11 below for sample size determinations.

Table 2.11: Sample Size Estimation Table

Precision	20%	Precision	20%
Confidence	90%	Confidence	90%
Z-Statistic	1.645	Z-Statistic	1.645
Population Size, N	Sample Size, n*	Population Size, N	Sample Size, n*
4	4	60	14
8	6	70	14
12	8	80	15
16	9	90	15
20	10	100	15
25	11	125	15
30	11	150	16
35	12	175	16
40	12	200	16
45	13	300	17
50	13	400	17

Note: The coefficient of variation in the above table is estimated to be 0.5. If the actual coefficient of variation is smaller, sample sizes may be reduced (as long as 90% confidence & 20% precision is met).

Existing/Proposed Burn Hours:
Annual Burn Hours (ABH) is a parameter that is mutually agreed upon and is defined as the number of hours the lighting equipment operates each year. In the calculations, ABH was determined through discussion with Facilities personnel and site observation during the audit. These values are used to calculate savings for the upgrade. For the purposes of this agreement, the Existing/Proposed (i.e. pre-retrofit/post retrofit) values in the lighting audit shall be deemed as the floor-annual-burn-hours (i.e. the ABH shall never go below the usage group floor values).

Lighting Savings Calculations
JCI will use the unit Incremental Electrical Energy ($/kWh) rate (IER) and Demand Rate ($/kW) (DR), as defined in the Baseline Calculations and Utility Rates section of this document, to calculate avoided energy cost savings.

The following formulas represent the basis for calculating energy savings as described in the lighting calculations:

Demand Savings (kW) (Interior Only):

$$\textit{Connected kW Saving} = \sum_u [\,(\textit{Ann. kW/Fixture}_{baseline} \times \textit{Quantity}_{baseline} - \textit{Ann. kW/Fixture}_{post} \times \textit{Quantity}_{post})]_u$$

where:

Ann. kW/fixture$_{baseline}$ = lighting baseline demand per fixture type for usage group u x months/year
Ann. kW/fixture$_{post}$ = lighting demand per fixture type during post-installation period for usage group x months/year
Quantity$_{baseline}$ = quantity of affected fixtures before the lighting retrofit for usage group u
Quantity$_{post}$ = quantity of affected fixtures after the lighting retrofit for usage group u

Energy Savings (kWh):

$$\textit{kWh Savings}_{(Lighting)} = \sum_u [\,\textit{Connected kW Savings}_u \times \textit{ABH}_{(Usage\ Group)}\,]_u$$

$$\textit{kWh Savings Occupancy Sensors} = (\textit{ABH Pre} - \textit{ABH Post}) \times \textit{kW Post}$$

Energy Cost Savings ($):

Energy Cost Savings *(Lighting)* ***= (kWh Savings*** *(Lighting)* ***+ kWh Savings*** *(Occupancy Sensors)*)***x IER + Connected kW Savings x DR – H/C Factor***

where: DR = Demand Rate ($/kW)
IER = Incremental Electric Energy Rate ($/kWh)
H/C Factor = Heating/Cooling Factor = HP – CC
ABH Pre & ABH Post = Annual Burn Hours in Spaces with Occupancy sensors Post (Lighting Detail Attachment 7)

*HP (Heating Penalty): (KWHRED * 3413 * %HTRET * % Savings Heating Season) /BTUs/UNIT / EFF = MMBTU*
*CC (Cooling Credit): (KWHRED * 3413 * %HTRET *% Savings Cooling Season * %COOLED) /12000 * KW/TON = KWH*

where:

HTRET (heat returned to space), Heating System Efficiency, % of Building Cooled, and Winter & Summer coincident hours are in table below.

Table 2.12

Assumptions and Constants:					
City Hall	Police Dept.	Recreation Center	Community Ctr.	Water Dist. Facility	
75%	75%	75%	75%	75%	**...PERCENTAGE OF LIGHT HEAT RETURNED TO HVAC (%HTRET)**
80%	78%	80%	80%	80%	**…HEATING SYSTEM EFFICIENCY PRE-Retrofit (EFF)**
1.0	1.0	1.0	1.0	1.0	**....Avg. KW/TON OF CHILLER (KW/TON)**
90%	80%	3%	90.0%	1%	**....% OF BUILDING COOLED**
68%	72%	68%	68%	68%	**… % OF LTG. SAVINGS OCCURS DURING HEATING SEASON**
14%	11%	14%	14%	14%	**… % OF LTG. SAVINGS OCCURS DURING COOLING SEASON**
18%	17%	18%	18%	18%	**… % OF LTG. SAVINGS OCCURS DURING Swing SEASON**

Heating Debit: (KWRED * 3413 * %HTRET * % Savings Heating Season) / BTUs/UNIT / EFF = MMBTU
Cooling Credit: (KWRED * 3413 * %HTRET *% Savings Cooling Season * %COOLED) / 12000 * KW/TON = KWH

FIM-6A Air Handling/RTU Replacement

FIM-6A Air Handling Unit/RTU Replacement	Police Dept.	Water Treatment Facility

The rooftop units at the Police Department are in need of replacement, they will be replaced with equally sized heat recovery units. Adding a heat recovery feature allows the city to save on their heating load. The rooftop unit at the Water Treatment Plant will also be replaced with an equally sized unit to what is currently there.

Measurement & Verification Plan – Air Handling Unit (RTU) Replacement

Pre-Installation: Re-check audit, current equipment used, and associated savings calculations.

Post-Installation: Verify that approved "Scope of Work" has been completed and the new RTUs are installed correctly and working. Police Dept - Unit temperature variables associated with heat recovery will be trended once during the first performance year. This will occur during the heating and cooling seasons. JCI will use the Electric and Fuel Oil rates as defined in the Baseline Calculations and Utility Rates section of this document to calculate annual avoided energy cost savings. Savings will be based on assumptions and engineering calculations detailed in Attachment 5.

Duration of Measurement: One full month during the heating and cooling season.

Source Data: Product specifications, customer information, equipment inspection

The amount of heat transferred can be expressed as

$$H = 1.08\ q\ (t_2 - t_1)\ \eta \qquad (1)$$

where

H = heat transferred (Btu/h)

q = quantity of airflow (cfm)

t_1 = air temperature of the exhaust air **before** the heat recovery unit (^{o}F)

t_2 = air temperature of outside air **after** the heat recovery unit (^{o}F)

η = heat-recover efficiency

Heat-recovery efficiency – 74.7%

Airflow quantity – 2500 cfm

FIM-6C Heating System - Boiler Replacement

FIM-6C Heating System - Boiler Replacment	Waste Water Treatment Plant

The Waste Water Treatment Plant boiler in nearing the end of its useful life expectancy and are of the lower efficiency type compared to latest technology boilers. The new boiler will help the city achieve energy savings through equipment efficiency gains.

Measurement & Verification Plan

Pre-Installation: The pre-retrofit boiler energy use was calculated using the existing equipment nameplate information, age, fuel consumption history and discussion with city staff.

Post-Installation: Verify that the approved scope of work has been completed on the new boiler. Record any changes to the scope and adjust savings based on installation. Verify that a systematic start-up of the new boiler has been performed and testing procedures have checked-out. Each year of the M&V services period, an annual boiler combustion efficiency test will be performed per manufacture specifications on the new boiler during the heating season. Fuel use, heating degree data, equipment specifications, control system trends, and the calculations/assumptions used in development will be the basis for calculating energy savings. Fuel Oil Rate as defined in Section IV Baseline Calculations and Utilities will be used to determine cost avoidance.

Duration of Measurement: Short term each year of M&V Services Period

Source Data: Equipment specifications, fuel billing receipts, metered fuel use, weather data.

Savings Calculations

JCI will calculate the annual cost avoidance according to the following formula:

Fuel Oil $ Savings = NAFOS x Fuel Oil Rate ($/Gal.)

NAFOS = BFU-(BFU*(CFOBEFF/PFOBEFF))

Where:

NAFOS: Net Fuel Oil Savings

BFU: Baseline Fuel Usage (Floor usage after other FIM savings, 4,639 MMBtu)

CFOBEFF: Current Fuel Oil Boiler Fuel to Heat Efficiency

PFOBEFF: Proposed Fuel Oil Boiler Fuel to Heat Efficiency

FIM-7 Street Lighting

FIM-7 Street Lighing	City Streets

Measurement & Verification Plan- One Time

Pre-Installation: Re-check lighting audit.

Post-Installation: Verify that scope of work has been completed. Verify field fixture wattage. Record any changes to the scope and adjust savings if necessary.

Duration of Measurement: One-time inspection.

Savings Calculations

Existing kWh	= Adjusted Existing Fixture kWh
Cost per kWh	= $/kWh
Proposed kW	= Proposed Fixture wattage/1000 watts per kW
Cost of Proposed Lighting	= Proposed kW x Cost per kWh x Hours of Operation
Energy Savings $	= Cost of Existing Lighting – Cost of Proposed Lighting

Annual Hours of Operation: 4,015 Hours

Existing annual kWh = 203,380
*Cost per kWh = $0.19306
Proposed kW = Based on post installation sampled wattages

*Note: Savings based upon Rate 06 provided to JCI by email on 8/30/24 by Green Mountain Power.

Option B
Retrofit Isolation

Measured Project Benefits are determined by field measurement of the energy use of the systems to which an Improvement Measure was applied separate from the energy use of the rest of the facility. Short-term, long-term or continuous measurements are taken throughout the pre and post-retrofit periods. 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 Guarantee Term.

Measured Project Benefits from the following Improvement Measures will be calculated using Option B:

Table 2.13

Measured Energy Cost Avoidance			
M&V Option	**FIM #**	**FIM Description**	**First Year Projected Benefits**
B	1	Photovoltaic Generation	$ 95,725
B	5	Facility Management System	$ 15,312
Total Measured Cost Avoidance			**$ 111,036**

FIM-1 Photovoltaic Generation

FIM-1 Photovoltaic Generation	Fire Dept	Giorgetti Rink/Park	Police Dept.	Recreation Center	Community Ctr.

The Solar Photovoltaic (PV) system is a renewable energy resource measure designed to generate electricity from a total of 412 kW AC PV roof mount arrays at the Fire Department, Giorgetti Rink, Police Department, Recreation Center and the Community Center. The system was designed using a commercial professional solar system design and analysis software. The PV system is projected to yield 516,124 kWh during the first year of operation.

Measurement & Verification Plan (Short Term)

Pre-Installation: Using a solar modeling tool (Aurora) JCI designed a solar PV system consisting of PV modules, arrays and inverters at the facilities listed above. The industry-standard Aurora calculation and Helioscope tools provided projected energy (kWh) generation for each system. The tools account for specific system design factors and uses locational simulation data to calculate projected electric energy (kWh) output. Modelled irradiance (kWh/m^2) factors for the location is documented in Table 2.14 these values will be used in post retrofit calculations.

Post-Installation: Verify that approved scope of work has been completed and commissioned insuring that the solar PV system components are functioning per design. Test power measurement equipment and tracking system integration to insure accurate data recording. The new solar installations will have kWh meters installed that will track the energy generated from the solar arrays through a power generation tracking system. This value at contract rates will be used to track the contract savings generated by the solar systems (savings tracking is subject to adjustments during the guarantee term – see Solar PV Measure Adjustments below). JCI will measure kWh generation and irradiance and then use the Solar PV energy system power generation calculations below.

Duration of Measurement: Continuous data logging through the Inverter of electric power generation for three years. Report system performance annually for three year period.

Table 2.14

Month	Global Horizontal Irradiation (kWh/m^2)*
January	54.1
February	74
March	120.8
April	145
May	162.1
June	173.6
July	189.6
August	168.2
September	125.1
October	83
November	51.4
December	39
Total	**1385.9**

*All locations with same modelled kWh/m^2

Table 2.14a

System Size kWac	412
Estimated Annual kWh	516,124
Annual Degredation Factor	0.7%
Electric Rate	0.1840

Key Parameter	Measurement Frequency	Measurement Description (including sampling plan)
Electricity Generated (kW and kWh)	30 day period in the summer on an annual basis for first three years of term	The amount of electricity generated (kW and kWh) will be verified using data from the inverter. Measurements from all the panels installed by the project will be used.
Sunshine for Normalization (Measured as irradiance (kWh/m2))	30 day period in the summer on an annual basis for first three years of term	Average expected Irradiance data for City of Rutland, VT or closest location is used to calculate the contract savings.

The energy production guarantee shall assume the monthly baseline (reference) solar irradiance as shown above. On a monthly basis, the average amount of electricity produced per kWh/m^2 of solar irradiance will be calculated and the savings will be adjusted accordingly:

$$kWh_{Adjusted} = (kWh_{measured})\left(\frac{kWh/m^2{}_{contract}}{kWh/m^2{}_{measured}}\right)(\%RSS_{adjusted})$$

Where kWh/m^2 is the irradiance.

$$\%RSS_{Month} = \left(\frac{Irradiance\ (kWh/m^2)_{Month}}{Irradiance\ (kWh/m^2)_{Total}}\right)$$

$$\%RSS_{adjusted} = \sum_{1-12}^{Month}(\%RSS_{Month})\left(\frac{Days_{Month} - (Days_{offline})\left(\frac{Panels_{offline}}{Panels_{total}}\right)}{Days_{Month}}\right)$$

Where $\%RSS_{month}$ = Percentage of the total annual solar resource for that month
$Days_{month}$ = number of days in that month, $Days_{offline}$ = number of days each inverter is offline
$Panels_{offline}$ = number of panels offline, $Panels_{total}$ = total number of panels installed

kWh impact of any production factors that occur during the measurement period. Production factors are defined as events outside JCI control that has the effect of reducing kWh generation or failures in system operation due to maintenance that influences data collection and recording for complete and accurate data pertaining to production and weather. Other production factors include, but are not limited to, physical obstructions or interference with the solar irradiation of each array (i.e. over shadowing or shading), snow-frost-ice, utility grid outages, outages directed by the owner-customer, casualty events, Force Majeure events, theft, vandalism, equipment failure, DAS failure (lost connection or data), or utility system permit events (system disabled).

Solar PV Measure Adjustments

Definitions. For purposes of this Agreement, the following terms have the meanings set forth below:

Actual Energy means the energy, over the course of an Energy Year, delivered to the Energy Delivery Point. Units are Megawatt-Hours (MWH).

Baseline Incident Radiation is solar insolation in the plane of the collectors developed from Baseline Weather Conditions and modeled with transformation functions from Aurora over the course of a Year.

Baseline Weather Conditions means the meteorological data used to determine the Modeled Energy.

Degradation Rate means the percentage by which the Modeled Energy is downwardly adjusted on a compounded annual basis. For purposes of this Agreement, the Degradation Rate shall equal 0.7%.

Energy Contract Rate means the price that will be multiplied by an Energy Shortfall or Energy Surplus. Units are Dollars per Megawatt-Hour ($/MWH).

Energy Delivery Point means the point of interconnection to the distribution system or service panel.

Energy Year means the period of 365 days following the Commercial Operation Date and each 365 day anniversary thereafter throughout the Guarantee Term.

Force Majeure means conditions that are beyond the reasonable control, and without the intentional misconduct or negligence of the Party claiming the benefits of the Force Majeure, that include, but are not limited to: acts of God or nature; acts of government agencies; strikes; labor disputes; fires; explosions or other casualties; thefts; vandalism; riots or war; acts of terrorism; the unavailability of electrical transmission or distribution service at any time; interruptions or degradations in telecommunications, computer, or electronic communications systems that are beyond the reasonable control of JCI; changes in Laws pertaining to the operation of the project; interruption of electrical service at the Property Site or to the Generating Station; requirement by a utility that the Generating Station discontinue operation for any reason; physical obstruction or interference of insolation to the Generating Station, such as overshadowing or shading; appropriation or diversion of electricity by sale or order of any governmental authority having jurisdiction thereof; any action by any governmental authority that prevents or prohibits the

Parties from carrying out their respective obligations under this Agreement; or unavailability of parts, materials or supplies despite commercially reasonable efforts to procure such parts, materials or supplies.

Generating Station means the entirety of the solar generating system, its electrical and mechanical components, mounting or tracking components, inverter(s), modules, meter(s), and monitoring components described in Schedule 1

Global Horizon Irradiance means solar insolation measured at local weather station over the course of an Energy Year from the horizon (flat). Units are Kilowatt-Hours per Square Meter (kWh/m2).

Production Factor means any event or action outside the control of JCI that has the effect of reducing the Actual Energy, including physical obstruction or interference of insolation to the Generating Station, such as overshadowing or shading; utility grid outage; outage directed by Host, Generating Station owner, or utility; casualty events; Force Majeure Events; theft; or vandalism.

FIM-5 Facilities Management System- Controls Modification

FIM-5 Facilities Management System-Controls Modification	City Hall	Police Dept.	Community Ctr.

Energy savings via the FMS upgrade and optimization at City facilities will be achieved through a combination of HVAC controls strategies including:

Table 2.15

Control Strategy	City Hall	Police Dept	Community Ctr.
Controls Upgrade		X	X
Demand Control Ventilation			X
Controls Optimization	X	X	X

Measurement & Verification Plan

Pre-Installation: For each of the facilities and zones included in this measure, record existing schedules, temperature set points, control strategies and equipment controlled by the existing system.

Post-Installation: Verify that the scope of work for the upgraded FMS system has been properly installed per building as presented in Table 2.15. Verify with vendor on-site that the controls strategies and design parameters in Table 2.15a are in-place and sequences are performing per design during the heating and cooling seasons. Set-up system trending parameters with controls vendor during construction to be used to demonstrate the performance of the control strategies. Upon successful demonstration of the implementation of control strategies and parameters, energy savings will be assumed to be achieved per reporting period. If design parameters do not match table values, JCI will calculate the difference based on design controls parameters, communicate variance to the City, and make necessary adjustments/comments in the annual report. Savings will be based on engineering calculations found in Attachment 5.

Duration of Measurement: FMS system parameter stated above will be trended continuously and checked periodically during each M&V year of the M&V Services Period (permission from the City for system checks, reporting and operational purposes will be requested by JCI and must be provided in a timely manner).

Source Data: FMS system information and facilities personnel.

Table 2.15a

	Variables	City Hall	Police Dept	Community Ctr.
Pre-Retrofit	Pre-Retro Occupied (On Hours)	2,742	8,376	3,490
	Pre-Retro Unoccupied (Off Hours)	6,018	384	5,270
Post-Retrofit	Proposed Occupied (On Hours)	2,493	8,376	3,241
	Proposed Unoccupied (Off Hours)	6,267	384	5,519
	Boiler Efficiency (%)	80%	80%	80%
	Cooing System Efficiency (kW/Ton)	1	1	1
Winter Occupied Setpoint	Pre-Retro	70	70	70
	Proposed	68	68	68
Winter UnOccupied Setpoint	Pre-Retro	65	65	65
	Proposed	60	60	60
Summer Occupied Setpoint	Pre-Retro	72	72	72
	Proposed	74	74	74
Summer UnOccupied Setpoint	Pre-Retro	75	75	75
	Proposed	80	80	80
	Building Area	26,136	24,000	18,900
	Wall R-Value	4	4	4
	Roof R-Value	11	22	25
	Pre & Post Infiltration Air Changes / Hr.	0.2	0.2	0.2
	Unoccupied Fan Cycle Factor	30%	30%	30%
	Pre-Retro Occupied Ventilation (CFM)	2,000	5,000	6,900
	Proposed Occupied Ventilation (CFM)	2,000	5,000	6,900

CHANGES IN USE OR CONDITION; ADJUSTMENT TO BASELINE AND/OR ANNUAL PROJECT BENEFITS

Customer agrees to notify JCI, within fourteen (14) days, of (i) any actual or intended change, whether before or during the Guarantee Term, in the use of any facility, equipment, or Improvement Measure to which this Schedule applies; (ii) any proposed or actual expansions or additions to the premises or any building or facility at the premises; (iii) a change to utility services to all or any portion of the premises; or (iv) any other change or condition arising before or during the Guarantee Term that reasonably could be expected to change the amount of Project Benefits realized under this Agreement.

Such a change, expansion, addition, or condition would include, but is not limited to: (a) changes in the primary use of any facility, Improvement Measure, or portion of the premises; (b) changes to the hours of operation of any facility, Improvement Measure, or portion of the premises; (c) changes or modifications to the Improvement Measures or any related equipment; (d) changes to the M&V Services provided under this Agreement; (e) failure of any portion of the premises to meet building codes; (f) changes in utility suppliers, utility rates, method of utility billing, or method of utility purchasing; (g) insufficient or improper maintenance or unsound usage of the Improvement Measures or any related equipment at any facility or portion of the premises (other than by JCI); (h) 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 (i) additions or deletions of Improvement Measures or any related equipment at any facility or portion of the premises.

Such a change or condition need not be identified in the Baseline in order to permit JCI to make an adjustment to the Baseline and/or the Annual Project Benefits. If JCI does not receive the notice within the time period specified above or travels to either Customer's location or the project site to determine the nature and scope of such changes, Customer agrees to pay JCI, in addition to any other amounts due under this Agreement, 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. Upon receipt of such notice, or if JCI independently learns of any such change or condition, JCI shall calculate and send to Customer a notice of adjustment to the Baseline and/or Annual Project Benefits to reflect the impact of such change or condition, and the adjustment shall become effective as of the date the change or condition first arose. Should Customer fail to promptly provide JCI with notice of any such change or condition, JCI may make reasonable estimates as to the impact of such change or condition and as to the date on which such change or condition first arose in calculating the impact of such change or condition, and such estimates shall be conclusive.

IV. BASELINE CALCULATIONS AND UTILITY RATES

The unit utility costs for the Baseline period are set forth below as “Base Utility Cost” and shall be used for all calculations made under this Schedule. The Base Utility Cost shall be escalated annually by the actual utility cost escalation, but such escalation shall be no less than the mutually agreed “floor” escalation rate of three percent (3%). For FIM-1 Photovoltaic Generation, a 2.28% escalation is to be used. This is done to consider production degradation of the panels over time.

Table 2.16

Contract Electric Rates				
Facility	**Provider**	**Account #**	**Incremental Electric Rate (IER) $/kWh**	**Demand Rate (DR) $/kW**
City Hall	Green Mountain Power	74553200003	$0.120	$17.65
Fire Dept.	Green Mountain Power	56273200008	$0.110	$17.65
Giorgetti Rink/Park	Green Mountain Power	10853200003	$0.110	$17.65
Police Dept.	Green Mountain Power	48644200007	$0.110	$17.65
Water Treatment Facility	Green Mountain Power	89824200003	$0.110	$17.65
Recreation Center	Green Mountain Power	30195200008	$0.150	$20.15
DPW Bldg	Green Mountain Power	63553200005	$0.130	N/A
Waste Water Treatment Plant	Green Mountain Power	43683200000	$0.110	$17.65
Community Ctr.	Green Mountain Power	10325303039	$0.110	$17.65
Water Dist. Facility	Green Mountain Power	35994200000	$0.190	N/A
City Streets	Green Mountain Power		$0.193	N/A

Baseline Electric Calculations

The Incremental Electric Rate to be used in the calculation of savings for the current reporting period shall be the greater of Formulas A-1a or A-1b.

FORMULA A-1a

$$IER_n = \sum TKC_{1\text{-}12} \div \sum TKWH_{1\text{-}12}$$

Where:

IER_n: Incremental Electrical Rate (Dollars per kWh) for reporting year n.

$\sum TKC_{1\text{-}12}$: Sum Total of Monthly Electrical Utility Costs (Dollars) for kWh included Fuel Adjustment Cost and other related Energy Charges for Months 1 Through 12 of reporting year n.

$\sum TKWH_{1\text{-}12}$: Sum Total of Monthly Electrical Incremental Use (kWh) for Months 1 Through 12 of reporting year n.

FORMULA A-1b

$$IER_n = IER_{baseline} \times (1 + ER)^n$$

Where:

IER_n: Incremental Electric Rate ($/kWh) for reporting year n

$IER_{baseline}$: Incremental Electric Rate for the baseline period (Table 2.16)

ER: Escalation Rate, per contract

The Demand Rate to be used in the calculation of savings for the current reporting period shall be the greater of Formulas B-1a or B-1b.

FORMULA B-1a

$$DER_n = \sum TKC_{1\text{-}12} \div \sum TKWH_{1\text{-}12}$$

Where:

DER_n: Demand Electric Rate (Dollars per kW)

$\sum TKC_{1\text{-}12}$: Sum Total of Monthly Electrical Utility Costs (Dollars) for kW included Fuel Adjustment Cost and other related Energy kW Charges for Months 1 Through 12 of reporting year n.

$\sum TKW_{1\text{-}12}$: Sum Total of Monthly Electrical Demand (kW) for Months 1 Through 12 of reporting year n.

FORMULA B-1b

$$DER_n = DER_{baseline} \times (1 + ER)^n$$

Where:

DER_n: Demand Electric Rate ($/kW) for reporting year n

$DER_{baseline}$: Demand Electric Rate for the baseline period (Table 2.16)

ER: Escalation Rate, per contract

Solar Electric Rate

The table below lists the residential electric rate that were used to calculate the electricity credit for the Solar PV measure. This rate is set by Green Mountain Power under their "statewide blended residential rate" in the state biennial update order of 5/30/2024.

Table 2.17

Facilities	Electric rate $/kWh
Giorgetti Rink/Park	0.1840
Fire Dept	0.1840
Police Dept.	0.1840
Recreation Center	0.1840
Community Ctr.	0.1840

Contract Solar Electric Rate Calculations

The Electric Rate to be used in the calculation of electricity generation for the Solar PV measure for the current reporting period shall be the greater of Formulas C-1a or C-1b.

FORMULA C-1a

$$\mathbf{SER_n = \sum TC_{1\text{-}12} \div \sum TKWH_{1\text{-}12}}$$

Where:

SER_n: Solar Rate ($/ kWh) for reporting year n.

$\sum TC_{1\text{-}12}$: Sum Total of Monthly $ Solar Credits for Months 1 Through 12 of reporting year n.

$\sum TKWH_{1\text{-}12}$: Total Annual Solar PV Electricity Production (kWh) for reporting year n.

FORMULA C-1b

$$\mathbf{SER_n = SER_{baseline} \times (1 + ER)^{(n-1)}}$$

Where:

SER_n: ($/kWh) for reporting year n

$SER_{baseline}$: Baseline Solar Electric Rate Shown in Table 2.17

ER: Escalation Rate, 2.28% annually

Fuel Switch Electric

This section only applies to FIM-6D DHW Replacement, which involves a fuel switch. The Electric unit costs have been averaged over the course of the baseline period. In turn, unit costs will be averaged over the course of the reporting period, as reflected on utility invoices, for equitable cost avoidance savings reporting. The Base Electric Rates for FIM-6D DHW Replacement shall be no ***greater*** than the mutually agreed "ceiling" rate as established in Table 2.18 Electric Rate Post Retrofit.

Table 2.18 Electric Baseline Ceiling Rates

Facility Baseline Fuel Switch Electric Rates			
Facility	Provider	Baseline Fuel Switch Electric Rate ($FSER_{baseline}$) ($/kWh)	Baseline Fuel Switch Demand Rate ($FSDR_{baseline}$) ($/kW)
City Hall	Green Mountain Power	$0.120	$17.650
Police Dept.	Green Mountain Power	$0.110	$17.650
Recreation Center	Green Mountain Power	$0.150	$20.150
Waste Water Treatment Plant	Green Mountain Power	$0.110	$17.650
Community Ctr.	Green Mountain Power	$0.110	$17.650

Fuel Oil

The table below lists the local fuel oil distributor rates (Champlain Plumbing & Heating) for the base period rates for each site in effect during the baseline period. Fuel Oil rates listed are average for the baseline period.

Table 2.19 Fuel Oil #2 Baseline Floor Rates

Contract Fuel Oil Rates	
Facility	Fuel Oil Rate (FOR) $/MMBTU
City Hall	$ 22.01
Fire Dept.	$ 22.01
Giorgetti Rink/Park	$ 22.02
Police Dept.	$ 22.02
Water Treatment Facility	$ 22.58
Recreation Center	$ 22.27
DPW Bldg	$ 22.01
Waste Water Treatment Plant	$ 22.01
Community Ctr.	$ 22.27
Water Dist. Facility	$ 22.01

Baseline Fuel Oil Calculations

The Fuel Oil unit costs will be averaged over the course of the reporting period, as reflected on delivery receipts, for equitable cost avoidance savings reporting.

The Fuel Oil Rate to be used in the calculation of savings for the current reporting period shall be the greater of Formulas D-1a or D-1b:

FORMULA D-1a

$$FOR_n = \Sigma TGC_{1\text{-}12} \div \Sigma TGU_{1\text{-}12}$$

Where:

FOR_n: Fuel Oil Rate ($/MMBtu.) for reporting year n

$\Sigma TGC_{1\text{-}12}$: Sum Total of Monthly Costs ($) for reporting year n

$\Sigma TGU_{1\text{-}12}$: Sum Total of Monthly Purchased (MMBtu.) for Months 1 Through 12 of reporting year n.

FORMULA D-1b

$$FOR_n = FOR_{baseline} \times (1 + ER)^{(n-1)}$$

Where:

FOR_n: Fuel Oil Rate ($/MMBtu.) for reporting year n

$FOR_{baseline}$: Fuel Oil Rate for the baseline period Table 2.19)

ER: Escalation Rate, per contract

V. MEASUREMENT & VERIFICATION SERVICES

JCI will provide the M&V Services set forth below in connection with the Assured Performance Guarantee.

1. During the Installation Period, a JCI Performance Assurance Specialist will track Measured Project Benefits. JCI will report the Measured Project Benefits achieved during the Installation Period, as well as any Non-Measured Project Benefits applicable to the Installation Period, to Customer within 90 days of the commencement of the Guarantee Term.

2. Within 90 days of each anniversary of the commencement of the Guarantee Term, JCI will provide Customer with an annual report containing:

    A. an executive overview of the project's performance and Project Benefits achieved to date;

    B. a summary analysis of the Measured Project Benefits accounting; and

    C. depending on the M&V Option, a detailed analysis of the Measured Project Benefits calculations.

3. During the Guarantee Term, a JCI Performance Assurance Specialist will monitor the on-going performance of the Improvement Measures, as specified in this Agreement, to determine whether anticipated Measured Project Benefits are being achieved. In this regard, the Performance Assurance Specialist will periodically assist Customer, on-site or remotely, with respect to the following activities:

    A. review of information furnished by Customer from the facility management system to confirm that control strategies are in place and functioning;

    B. advise Customer's designated personnel of any performance deficiencies based on such information;

    C. coordinate with Customer's designated personnel to address any performance deficiencies that affect the realization of Measured Project Benefits; and

    D. inform Customer of opportunities to further enhance project performance and of opportunities for the implementation of additional Improvement Measures.

4. For specified Improvement Measures utilizing an "Option A" M&V protocol, JCI will:

    A. conduct pre and post installation measurements required under this Agreement;

    B. confirm the building management system employs the control strategies and set points specified in this Agreement; and

    C. analyze actual as-built information and adjust the Baseline and/or Measured Project Benefits to conform to actual installation conditions (e.g., final lighting and water benefits calculations will be determined from the as-built information to reflect the actual mix of retrofits encountered during installation).

5. For specified Improvement Measures utilizing an "Option B" M&V protocol, JCI will:

    A. confirm that the appropriate metering and data points required to track the variables associated with the applicable Improvement Measures' benefits calculation formulas are established; and

    B. set up appropriate data capture systems (e.g., trend and totalization data on the facility management system) necessary to track and report Measured Project Benefits for the applicable Improvement Measure.

CUSTOMER RESPONSIBILITIES

In order for JCI to perform its obligations under this Agreement with respect to the Work, the Assured Performance Guarantee, and the M&V Services, Customer shall be responsible for:

1. Providing JCI, its subcontractors, and its agents reasonable and safe access to all facilities and properties that are subject to the Work and/or M&V Services;

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 Work and/or M&V Services;

3. Providing timely reviews and approvals of design submissions, proposed change orders, and other project documents;

4. Providing the following information with respect to the project and project site as soon as practicable following JCI's request:

    a. surveys describing the property, boundaries, topography and reference points for use during construction, including existing service and utility lines;
    b. geotechnical studies describing subsurface conditions, and other surveys describing other latent or concealed physical conditions at the project site;
    c. temporary and permanent easements, zoning and other requirements and encumbrances affecting land use, or necessary to permit the proper design and construction of the project and enable JCI to perform the Work;
    d. a legal description of the project site;
    e. as-built and record drawings of any existing structures at the project site; and
    f. environmental studies, reports and impact statement describing the environmental conditions, including hazardous conditions or materials, in existence at the project site.

5. Securing and executing all necessary agreements with adjacent land or property owners that are necessary to enable JCI to perform the Work;

6. Providing assistance to JCI in obtaining any permits, approvals, and licenses that are JCI's responsibility to obtain as set forth in Schedule 1;

7. Obtaining any permits, approvals, and licenses that are necessary for the performance of the Work and are not JCI's responsibility to obtain as set forth in Schedule 1;

8. Properly maintaining, and performing appropriate preventative maintenance on, all equipment and building systems affecting the Assured Performance Guarantee in accordance with manufacturers' standards and specifications;

9. Providing the utility bills, reports, and similar information reasonably necessary for administering JCI's obligations under the Assured Performance Guarantee within five (5) days of Customer receipt and/or generation or JCI's request therefor;

10. Providing all records relating to energy and/or water usage and related maintenance of the premises and relevant equipment requested by JCI;

11. Providing and installing utility sub-meters on all new construction and/or additions built during the Guarantee Term as recommended by JCI or, alternatively, paying JCI's applicable fees for calculating necessary adjustments to the Assured Performance Guarantee as a result of the new construction;

12. Providing and maintaining wireless communication cell service to monitor solar PV sites (as needed).

13. Promptly notifying JCI of any change in use or condition described in Section III of Schedule 2 or any other matter that may impact the Assured Performance Guarantee;

14. Taking all actions reasonably necessary to achieve the Non-Measured Project Benefits;

15. Customer is responsible for providing cell service to monitor the solar PV system performance for the term of the contract.

16. If any equipment under control is changed out, moving the controls and the controls programming to the new equipment;

17. Providing room for a laydown area, parking, room for a dumpster, necessary office space as determined by JCI.

18. The Customer will provide JCI with a timely response to requests for approval for material to be used in Schedule 1.

19. The Customer will provide all required Ethernet drops and IP Addresses as needed for the FIM's requiring internet access.

20. Removal of existing solar PV panels on Community Center to be performed by customer and/or existing solar PV PPA provider

PRICE AND PAYMENT TERMS

Customer shall make payments to JCI pursuant to this Schedule 4.

1. *Work*. The price to be paid by Customer for the Work shall be **$4,900,565.00**. Payments (including payment for materials delivered to JCI and work performed on and off-site) shall be made to JCI as follows:

   i. An invoice for an Initial Payment (**30% or $1,470,169.50**) will be submitted by JCI to Customer, within five (5) business days after this Agreement has been fully executed, for initial project mobilization and major equipment order(s). This invoice shall be paid to JCI within ten (10) business days of receipt of invoice.

   ii. The remainder of the Agreement price will be invoiced via monthly progress invoices using standard AIA G702/703 forms. The Customer shall make progress payments promptly within fifteen (15) business days of its receipt of an invoice. Payments that remain unpaid after thirty (30) days shall be subject to a monthly service charge of one and one-half percent (1.5%) per month.

2. *M&V Services:* The price of M&V Services for Years 1-3 is set forth in the table below. The total price for M&V Services, as detailed on Schedule 2 and/or Schedule 3 of this agreement, is $57,873. This amount will be paid to JCI in annual installments per Table 4.1 below. These payments will be due and payable when the Customer receives JCI's invoice and in advance of the services JCI is to provide and shall be made throughout the Guarantee Term. These payments will be due and payable when the Customer receives JCI's invoice and in advance of the services JCI is to provide and shall be made throughout the reporting term, as shown below or on the attached chart below.

Table 4.1

Year	M&V Price
1	$ 18,400
2	$ 19,373
3	$ 20,100
4	Optional
5	Optional
6	Optional
7	Optional
8	Optional
9	Optional
10	Optional
11	Optional
12	Optional
13	Optional
14	Optional
15	Optional
16	Optional
17	Optional
18	Optional
19	Optional
20	Optional
Total	$ 57,873

Customer may at its sole discretion continue M&V services from years 4-20. The cost for these services would increase at 3% per year for years 4-20.

Customer acknowledges and agrees that if, for any reason, it (i) cancels or terminates receipt of M&V Services, (ii) fails to pay for M&V services in accordance with Schedule 4, (iii) fails to fulfill any of its necessary responsibilities necessary to enable JCI to complete the Work and provide the M&V Services, or (iv) otherwise cancels, terminates, or materially breaches this Agreement, the Assured Performance Guarantee shall automatically terminate and JCI shall have no liability hereunder.

Attachment 1

NOTICE TO PROCEED

Johnson Controls, Inc.
915 Holt Ave. Unit#7
Manchester, NH 03109

ATTN: Victor Holt

Re: Notice to Proceed for City of Rutland

Dear Mr. Holt:

This Notice to Proceed is being issued by City of Rutland ("Customer") to JCI, Inc. ("JCI") pursuant to that certain Performance Contract entered into between Customer and JCI for the purpose of notifying JCI to commence work under such contract. Base Notice to Proceed excludes all measures for Rutland City Hall (1 Strongs Avenue) until acknowledged below by the Customer.

In the event that this Notice to Proceed is delivered by Customer prior to the execution of the Performance Contract by Customer and JCI, Customer understands and expects JCI will incur significant costs and expenses in complying with this Notice to Proceed. In the event the Performance Contract is not executed by the parties, for any reason, Customer agrees to pay JCI for its costs and fees incurred in complying with this Notice to Proceed on a time and material basis. Customer also agrees JCI shall be entitled to a reasonable markup thereon for profit and overhead. Customer agrees to pay amounts billed by JCI no later than five (5) days after Customer receives JCI's payment application. JCI will continue to submit payment applications to Customer until the Performance Contract is executed. Once the Performance Contract is executed, JCI will begin submitting its payment applications to Customer in accordance with the terms and conditions set forth therein. Any amounts already paid by Customer will be credited towards the Performance Contract price.

By signing and dating this Notice to Proceed, the parties hereto agree to these terms and represent and warrant they have the authority to execute this Notice to Proceed on behalf of their respective organizations.

Base Notice To Proceed:
CITY OF RUTLAND

Signature:_____

Printed Name:_____

Title:_____

Date:_____

JOHNSON CONTROLS, INC.

Signature:_____

Printed Name:_____

Title:_____

Date:_____

City Hall Scope Option:

CITY OF RUTLAND

Signature:_____

Printed Name:_____

Title:_____

Date:_____

JOHNSON CONTROLS, INC.

Signature:_____

Printed Name:_____

Title:_____

Date:_____

Attachment 2

CHANGE ORDER

Performance Contract dated , 20 between JCI, Inc. and Customer	Change Order No.		Date (mo/day/yr)
Customer City of Rutland Vermont			

The above referenced Performance Contract is hereby modified to the extent described below in accordance with the Terms and Conditions of the CHANGE ORDERS section thereof.

Scope of Work changed as follows:

Total amount of this Change Order	$
Total Performance Contract amount as revised by this Change Order	$
The time for completion is: ☐ increased, ☐ decreased, ☐ unchanged. The new completion date resulting from this Change Order is:	(mo, day, yr)

[check if applicable] Assured Performance Guarantee changed as follows:

Unless specifically changed by this Change Order, all terms, conditions and provisions of the above referenced Performance Contract remain unchanged and in full effect.

JOHNSON CONTROLS, INC.	**Customer**
Signature:	Signature:
Printed Name:	Printed Name:
Title:	Title:

Attachment 3

CERTIFICATE OF SUBSTANTIAL COMPLETION

PARTIES: Johnson Controls, INC. ("JCI")
915 Holt Ave. Unit#7
Manchester, NH 03109

City of Rutland Vermont ("Customer")
1 Strongs Ave.
Rutland, Vermont 05702

PROJECT: Performance Contract dated _____ __, 20__ between JCI and Customer

By executing this Certificate of Substantial Completion, Customer acknowledges the following:

a. The work set forth in the Performance Contract is substantially complete.

b. Customer has received the manuals, warranty information, and training required under the Performance Contract.

c. The following punch list items must be completed by JCI (check as applicable):

☐ punch list attached
☐ punch list complete

d. Upon completion of the punch list items, or if such punch list items are complete, JCI and Customer shall sign the Certificate of Final Completion attached hereto.

Dated , 20 .

CUSTOMER:	**JOHNSON CONTROLS, INC.**
Signature:_____	Signature:_____
Printed Name:_____	Printed Name:_____
Title:_____	Title:_____

Attachment 4

CERTIFICATE OF FINAL COMPLETION

PARTIES: Johnson Controls, INC. ("JCI")
915 Holt Ave. Unit#7
Manchester, NH 03109

City of Rutland Vermont ("Customer")
1 Strongs Ave.
Rutland, Vermont 05702

PROJECT: Performance Contract dated _____ __, 20__ between JCI and Customer

By executing this Certificate of Final Completion, Customer acknowledges the following:

a. The work set forth in the Performance Contract has been reviewed and determined by Customer to be fully complete.

b. Customer accepts the work as complete and hereby releases JCI's obligations under any performance and payment bonds posted for the project as of the date set forth below.

Dated , 20 .

CUSTOMER:	**JOHNSON CONTROLS, INC.**
Signature:_____	Signature:_____
Printed Name:_____	Printed Name:_____
Title:_____	Title:_____