Article 1: Scope of Work

1.1 *Description*: Except as otherwise expressly provided herein, SIEMENS shall provide each and every item of cost and expense necessary for: Energy Performance Contract work at the Town of Lima

1.2 *Specific Elements*: The Work shall include the following:

1.2.1 Lighting Upgrades
Buildings – Lima Town Hall, Lima Town Court, Lima Public Library, Lima DPW Garage

SIEMENS will upgrade the existing lighting in the specified buildings with LED lighting. Refer to the Lighting Scope of Work included in Exhibit F for details.

1.2.2 Building Envelope Improvements
Buildings – Lima Town Hall, Lima Town Court, Lima Public Library, Lima DPW Garage

Door Weather-Stripping
SIEMENS will install new weather-stripping and door sweeps as shown in the Table below. The doors will be fitted with Q-Ion weather-strips and replacement felt gaskets.

Building	Single Doors	Double Doors
Lima Town Hall	5	0
Lima Town Court	4	0
Lima Public Library	2	1
Lima DPW Garage	3	0

Overhead Doors
SIEMENS will install new Action Brand commercial grade side seals along with new aluminum carriers around the perimeter of each overhead door. Additionally, heavy-duty Action Brand bottom rubber seals will be installed on each overhead door. Overhead doors with bump-stop safety centers on the bottom will not receive new bottom carriers; rather, existing doors will be cleaned and reset for proper operation.

Building	Overhead Doors
DPW Garage	10

Roof-Wall Interface Sealing
SIEMENS will seal the gaps in the selected sections identified in the Table below with closed cell spray foam insulation. Depending on the identified roof-wall gap, it will be sealed from both the top and the bottom of the spandrel and / or support joist or site of infiltration.

Building	Length (lineal feet)
Lima Public Library	242.3

Attic Insulation

SIEMENS will use AFT cellulose insulation to dense pack the space between the ceiling joist and floorboards to improve R-value at the Lima Town Hall and Lima Town Court locations while leaving attic / storage access unchanged.

The Lima DPW Garage will have standard air-sealing and insulation installed to compliment and improve the existing insulation performance.

In necessary areas, baffles will be added to allow for air flow up the roof deck to the peak to increase ventilation in the attic space.

The total area (square feet) to be insulated at each building is:

Building	Area of Insulation (sq ft)
Lima Town Hall	1001.3
Lima Town Court	1026.8
Lima DPW Garage	3009.7

Door Replacement

SIEMENS will replace one (1) existing exterior door located in the office area of Lima Town Hall with a new aluminum-framed FRP door. Includes new door, door handle, lock set, closer device, and full weather-stripping.

1.2.3 VRF Heat Pump Installation
Buildings – Lima Town Hall
SIEMENS will install a variable refrigerant flow (VRF) heat pump system in the Lima Town Hall building to provide both heating and cooling.
Scope of Work Details include:

- Demolish and remove existing steam boiler, flue and related components within the boiler room as necessary
- Furnish and install the following HVAC equipment:
  - One (1) 18-Ton heat recovery outdoor condensing unit
  - One (1) 16-Ton heat recovery outdoor condensing unit
  - One (1) 14-Ton heat recovery outdoor condensing unit
  - Six (6) 8-port mode change units
  - Thirty-three (33) indoor heat pump units (various sizes)
  - Quick slings for condensing units
  - Wind baffles for low ambient temperature operation
  - Wireless thermostats for each heat pump unit
  - Eight (8) electric unit heaters as follows:

Tag	Location	Type	Nominal Capacity
UH-1	Cleaner	Ceiling Hung	1 kW
UH-2	Boiler	Ceiling Hung	1 kW
UH-3	Storage	Ceiling Hung	1 kW

UH-4	Womens RR	Wall Recessed	1 kW
UH-5	Mens RR	Wall Recessed	0.75 kW
UH-6	Basement Entry	Wall Recessed	2 kW
UH-7	Vestibule	Wall Recessed	1.25 kW
UH-8	1st Floor Entry	Wall Recessed	0.75 kW

- Provide excavation, backfill and concrete pad where new outdoor units are to be located
- Perform related piping for new VRF heat pump system as follows:
  - Refrigeration piping to be performed in Type ACR copper with brazed fittings, with linesets to be used depending on accessibility
  - Condensate piping to be installed as necessary
  - All piping to be run exposed on building interior
- Insulate all new refrigeration piping with Armaflex or equivalent, exterior piping to be insulated with aluminum jacketing
- Furnish and install new three-phase 208/120V electrical distribution equipment with associated wiring including the following:
  - One (1) 800A electrical panel to be located at the electrical service entrance location
  - One (1) 800A approved CT cabinet
  - Two (2) 200A branch panel boards
- Provide all electrical wiring and connections to new VRF heat pump system equipment
- Provide all control wiring and terminations to new VRF heat pump system equipment
- Provide electrical wiring and connections to eight new unit heaters
- Demolish and remove existing electrical panel boards and disconnects
- Transfer existing circuitry into new electrical panel
- Re-feed existing Square D panelboards into new 800A electrical distribution panel
- Perform start-up / testing of new equipment

1.2.4 Solar Photovoltaic
Buildings – Lima DPW Garage

SIEMENS will install a 91.76 kW solar photovoltaic (PV) system mounted on the roof of the Lima DPW Garage.

Scope of Work Details include:
- Furnish and install a 91.76 kW solar PV system to be mounted on the roof of the Lima DPW Garage
- Tie solar system into main electric meter at building

1.2.5 EV Charging Stations
Buildings – Lima Public Library

SIEMENS will install a total of four commercial level 2 electric vehicle charging stations in the parking lot at the Lima Public Library.

Scope of Work Details include:

- Furnish and install two (2) dual-port Autel AC Wallbox Commercial Level 2 electric vehicle charging stations (4 total ports) with retractors
- Ports include protective bollards for each pedestal and 25 foot cords
- The parking spots to have the charging ports installed are the four most southwestern spots in the parking lot

1.3 *Technical Specifications, Drawings, and Exhibits:* Reference drawings dated October 31, 2024.

1.4 CLIENT Responsibilities (in addition to those in Article 6 of the Agreement): CLIENT shall cooperate with SIEMENS in SIEMENS' efforts to obtain rebates. CLIENT cooperation includes, but is not limited to, signature on applications and permitting utility personnel to enter the Facility where the FIMs have been installed in order to verify their installation and that they are operating.

Article 2: Work Implementation Period

2.1 Commencement of Work: SIEMENS shall commence the Work upon receipt of written notice to proceed from the CLIENT which shall be issued following the closing of the CLIENT's financing and the CLIENT having executed a contract with the USDA for the grant funds, as described in the Agreement's Section 3.1 as contingencies to the Agreement. The notice to proceed may be limited to certain portions of the Work with a second notice to proceed following shortly thereafter for the remaining portion(s) of the Work (Item 1.2.3). SIEMENS shall perform the Work diligently and shall complete the Work no later than twelve (12) months after the commencement of the Work.
If the CLIENT issues a notice to proceed limited to certain portions of the Work, however, then to the extent that an extension is needed due to a delay in the CLIENT issuing the second notice to proceed, the Parties shall negotiate in good faith to adjust the time for completion accordingly.

Article 3: Scope of Services-Performance Assurance Services Program

3.1 The PASP will provide the CLIENT with an Annual Performance Assurance Report within sixty (60) days of the end of each Annual Period.

3.2 Performance Assurance Services are all labor activities, site visits, monitoring and analyses necessary to calculate the Annual Realized Savings achieved by the Project, and to prepare and present the Annual Performance Assurance Report for the respective Annual Period.

3.3 Each Annual Performance Assurance Report shall include:

3.3.1 The Measured and Verified Savings for the respective Annual Period, including supporting documentation required to complete the Measurement and Verification Plan outlined in Article 4, Exhibit C of this Agreement.

3.3.2 The Annual Realized Savings achieved by the Project for each respective Annual Period.

3.3.3 A comparison of the Annual Realized Savings and Guaranteed Annual Savings to determine whether there is a Savings Shortfall for the respective Annual Period, pursuant to Article 4 of the Performance Contracting Agreement.

3.4 Performance Assurance Digital Services to include quarterly monitoring and reporting of key performance indicators through the SIEMENS digital monitoring platform and monitoring tools.

Article 4: Scope of Services-Maintenance Services Program

CLIENT has elected to self-implement maintenance. Therefore, SIEMENS shall not perform any on-going maintenance services, although the Parties may negotiate a separate agreement for such services at a later date. CLIENT agrees that it will maintain the equipment per manufacturer specifications and that it will operate the Equipment in accordance with the Contracted Baseline described in Article 7 of Exhibit C. If CLIENT fails to properly maintain or operate the Equipment, SIEMENS shall have the right to modify the Performance Guarantee pursuant to Article 4 of the Agreement.

By signing below, this Exhibit is attached to and made a part of the Agreement between SIEMENS and the CLIENT.

CLIENT:	**Town of Lima**	**SIEMENS:**	**Siemens Industry, Inc.**
Signature:		Signature:	
Printed Name:	Michael J. Falk	Printed Name:	
Title:	Supervisor	Title:	
Date:	3/6/25	Date:	
		Signature:	
		Printed Name:	
		Title:	
		Date:	

Article 1: Payment for Scope of Work

1.1 **Price:** As full consideration of the Work as described in Exhibit A, Article 1: Scope of Work, the CLIENT shall pay to SIEMENS **$2,093,498**, (see Table B.1 – FIM Work Payment Schedule) which is a portion of the total Project cost which is **$2,208,946**. The remainder of the total Project cost consists of **$115,448** for the implementation of the CLIENT's ADA work to be completed at Lima Town Hall (see Table B.1.2 – CLIENT Direct Funded Items).

1.2 **Escrow:** The CLIENT has agreed to deposit the Price into an Escrow Account at a financial institution satisfactory to both the CLIENT and SIEMENS. All expenses to establish the Escrow Account shall be the complete responsibility of the CLIENT and the CLIENT will receive all interest earnings from the Escrow Account. SIEMENS will submit periodic invoices to the CLIENT based on the Payment Schedule in Table B.1 below. The CLIENT shall be responsible for submitting the necessary documents to the Escrow Agent to allow for timely disbursements from the Escrow Account. The funding of the Escrow Account in an amount equal to or greater than the Price stated in Article 1.1 above shall be a condition precedent to SIEMENS obligation to perform or to continue the performance of the Work. If the Escrow Account is not funded within ninety (90) days of the execution of this Agreement, this Agreement shall be null and void. This ninety (90) day funding period may be extended as mutually agreed in writing by the Parties. In the event that the Agreement becomes null and void as described in this paragraph and CLIENT has previously authorized SIEMENS to proceed with the Work, the CLIENT shall be obligated to reimburse SIEMENS either: (i) for the Work performed to date; or (ii) for the Work specifically authorized by the CLIENT.

1.3 **Timely Payments:** The CLIENT agrees to pay SIEMENS an initial amount upon the close of financing and monthly AIA (American Institute of Architects) invoices submitted by SIEMENS per Table B.1 below submitted for Work performed. CLIENT agrees to pay all invoices submitted by SIEMENS per Article 8 of the Agreement.

1.4 **Retainage:** Except as otherwise required by law, the CLIENT shall retain Five Percent (5%) of the amount of the progress payments set forth in Table B.1, until the Certificate of Final Completion is executed. All retainage shall be paid to SIEMENS prior to the Guarantee Date.

Table B.1 – FIM Work Payment Schedule

Project Phase	Payments ($)	Payments (%)	Schedule
Startup	$209,345	10%	Upon Close of Financing
Month #1	AIA Billing	AIA Billing	Net 30 Days from Invoice
Month #2	AIA Billing	AIA Billing	Net 30 Days from Invoice
Month #3	AIA Billing	AIA Billing	Net 30 Days from Invoice
Month #4	AIA Billing	AIA Billing	Net 30 Days from Invoice
Month #5	AIA Billing	AIA Billing	Net 30 Days from Invoice
Month #6	AIA Billing	AIA Billing	Net 30 Days from Invoice
Month #7	AIA Billing	AIA Billing	Net 30 Days from Invoice
Month #8	AIA Billing	AIA Billing	Net 30 Days from Invoice
Month #9	AIA Billing	AIA Billing	Net 30 Days from Invoice
PROJECT TOTAL:	$2,093,498	100%	

Table B.1.2 – CLIENT Direct Funded Items

Project Phase	Payments ($)	Notes
Lima Town Hall ADA Work	$115,448	Paid directly by CLIENT

Article 1 of Exhibit B is attached to and made a part of the Agreement between SIEMENS and the CLIENT.

CLIENT:	**Town of Lima**	**SIEMENS:**	**Siemens Industry, Inc.**
Signature:		Signature:	
Printed Name:	MICHAEL J. FALK	Printed Name:	
Title:	SUPERVISOR	Title:	
Date:	3/6/26	Date:	
		Signature:	
		Printed Name:	
		Title:	
		Date:	

Article 2: Payment for Performance Assurance Services Program (PASP)

2.1 **Price:** As full consideration of the Services as described in Exhibit A, Article 3, the CLIENT shall pay to SIEMENS the amounts identified in Table B.2 plus taxes, if applicable, on the dates identified therein.

2.2 **Performance Assurance Services Program Term:** The term of the PASP shall commence on the Guarantee Date and shall extend for either: (a) the term of the Performance Guarantee Period where multi-year obligations are allowed; or (b) for twelve (12) month periods corresponding to the term of each Annual Period.

2.3 **Automatic Renewal:** Where the PASP term is limited to an Annual Period, the PASP shall automatically renew for successive Annual Periods beginning on the anniversary date of Guarantee Date. Either party may request to amend the PASP at the end of an Annual Period by giving the other party at least sixty (60) days prior written notice of such amendments and such amendment shall be mutually negotiated by the Parties and effective upon a written amendment signed by both Parties prior to commencement of the next Annual Period. Each automatic renewal shall be and remain subject to the terms and conditions of this Agreement. SIEMENS obligations under the Performance Guarantee are dependent upon and subject to the express condition that the CLIENT maintains the PASP during the entire Performance Guarantee Period.

2.4 **Termination/Cancellation:** If the PASP is terminated, Section 4.7 of the Agreement shall apply.

Table B.2 – Performance Assurance Program Payment Schedule

Date	Annual Payments ($)
Annual Period 1	$14,542
Annual Period 2	$4,892
Annual Period 3	$5,161
Annual Period 4	$5,445
Annual Period 5	$5,744
Annual Period 6	$6,060
Annual Period 7	$6,394
Annual Period 8	$6,745
Annual Period 9	$7,116
Annual Period 10	$7,508
Annual Period 11	$7,921
Annual Period 12	$8,356
Annual Period 13	$8,816
Annual Period 14	$9,301
Annual Period 15	$9,812
Annual Period 16	$10,352
Annual Period 17	$10,921
Annual Period 18	$11,522
Annual Period 19	$12,156
Annual Period 20	$12,824

Article 2 of Exhibit B is attached to and made a part of the Agreement between SIEMENS and the CLIENT.

CLIENT:	**Town of Lima**	**SIEMENS:**	**Siemens Industry, Inc.**
Signature:		Signature:	
Printed Name:	MICHAEL J. FALK	Printed Name:	
Title:	SUPERVISOR	Title:	
Date:	3/6/25	Date:	
		Signature:	
		Printed Name:	
		Title:	
		Date:	

Article 3: Payment for Maintenance Services Program (MSP)

A Maintenance Service Program is not included as part of this Agreement.

Article 3 of Exhibit B is attached to and made a part of the Agreement between SIEMENS and the CLIENT.

CLIENT:	**Town of Lima**	**SIEMENS:**	**Siemens Industry, Inc.**
Signature:		Signature:	
Printed Name:	MICHAEL J. FALK	Printed Name:	
Title:	SUPERVISOR	Title:	
Date:	3/6/25	Date:	
		Signature:	
		Printed Name:	
		Title:	
		Date:	

Articles and Tables

The following Articles and Tables are hereby included and made part of this Exhibit C:

Article 1	Total Guaranteed Savings
Article 2	Measurement and Verification Options
Article 3	Performance Guarantee Period Responsibilities of CLIENT
Article 4	Measurement and Verification Plan
Article 5	Baseline Data
Article 6	Utility Rate Structures and Escalation Rates
Article 7	Contracted Baseline Data

This Exhibit C provides the methodology to be used to determine the Annual Realized Savings and the reconciliation of these calculated Savings with the Guaranteed Annual Savings for each Annual Period of the Performance Guarantee Period. The Scope of Services for the Performance Assurance Service Program is provided in Article 3 of Exhibit A.

Article 1: Total Guaranteed Savings

Performance Period	Electric Energy Saved (kWh)	Natural Gas Saved (MCF)
Annual Period 1	**53,637**	**735.0**

1.1 Only Annual Period 1 is shown as the energy/utility unit Savings will remain constant for each Annual Period of the Performance Guarantee Period as the CLIENT will operate the Facility in accordance with the Contracted Baseline identified in Article 7.

Table 1.2 – Total Guaranteed Savings (Cost)

Performance Period	Energy/Utility Savings	Operational Savings	Total Savings
Annual Period 1	$9,481	$3,240	$12,721
Annual Period 2	$9,765	$3,338	$13,103
Annual Period 3	$10,058	$3,438	$13,496
Annual Period 4	$10,360	$3,541	$13,901
Annual Period 5	$10,671	$3,647	$14,318
Annual Period 6	$10,991	$3,757	$14,748
Annual Period 7	$11,321	$3,869	$15,190
Annual Period 8	$11,661	$3,985	$15,646
Annual Period 9	$12,010	$4,105	$16,115
Annual Period 10	$12,371	$4,228	$16,599
Annual Period 11	$12,742	$4,355	$17,097
Annual Period 12	$13,124	$4,486	$17,610
Annual Period 13	$13,518	$4,620	$18,138
Annual Period 14	$13,923	$4,759	$18,682
Annual Period 15	$14,341	$4,901	$19,242
Annual Period 16	$14,771	$5,048	$19,820
Annual Period 17	$15,214	$5,200	$20,414

Annual Period 18	$15,671	$5,356	$21,027
Annual Period 19	$16,141	$5,517	$21,657
Annual Period 20	$16,625	$5,682	$22,307
TOTALS	**$254,760**	**$87,072**	**$341,831**

1.2 Table 1.2 shows the CLIENT'S guaranteed cost Savings for each Annual Period that are extrapolated from the guaranteed energy/utility unit Savings shown in Table 1.1 by multiplying the energy/utility Savings by the Baseline energy/utility rates including the stipulated Escalation Rates found in Article 6.

1.3 SIEMENS cannot and does not predict fluctuations in utility rates or the cost of energy. Therefore, the CLIENT and SIEMENS agree that the energy/utility cost Savings for each Annual Period will be calculated by multiplying the verified units of energy/utility Savings by the Annual Period's stipulated energy/utility rate and Escalation Rates and not the Annual Period's actual utility rate.

1.4 The determination of energy/utility Savings will follow current best practice, as defined in the IPMVP, or the FEMP Guidelines where required, unless otherwise agreed to by the Parties.

1.5 The Performance Guarantee does not operate to guarantee the Savings per-FIM. Rather, the calculation of Savings is based on aggregate performance of certain FIMs contained in the Project. The projected value of such aggregate performance is contained in Table 1.2 above representing the Total Guaranteed Savings as monetized.

This Exhibit C, comprising 15 pages, is attached to and made a part of the Agreement between SIEMENS and the CLIENT.

CLIENT: **Town of Lima**
Signature: _____
Printed Name: MICHAEL J. FALK
Title: SUPERVISOR
Date: 3/6/25

SIEMENS: **Siemens Industry, Inc.**
Signature: _____
Printed Name: _____
Title: _____
Date: _____

Signature: _____
Printed Name: _____
Title: _____
Date: _____

Article 2: Measurement and Verification Options

2.1 Measurement and Verification Options: There are five measurement and verification options to measure and verify energy/utility Savings: Option A - Retrofit Isolation: Key Parameter Measurement; Option B - Retrofit Isolation: All Parameter Measurement; Option C - Whole Facility; and, Option D – Calibrated Simulation. Options A through and including D are part of the IPMVP. Option E-Stipulated is based on industry accepted engineering standards and is the Option used for purposes of calculating Operational Savings.

Option A - Retrofit Isolation: Key Parameter Measurement. Savings are determined by field measurement of the key performance parameter(s) which define the energy use of the FIM's affected system(s) and/or the success of the Project. Measurement frequency ranges from short-term to continuous, depending on the expected variations in the measured parameter and the length of the reporting period. Parameters not selected for field measurement are estimated. Estimates can be based on historical data, manufacturer's specifications, or engineering judgment. Documentation of the source or justification of the estimated parameter is required. The plausible savings error arising from estimation rather than measurement is evaluated. If applicable, the predetermined schedule for data collection, evaluation, and reporting is defined in Exhibit A, Article 3-Performance Assurance Services Program.

Option B – Retrofit Isolation: All Parameter Measurement. Savings are determined by field measurement of the energy use of the FIM-affected system. Measurement frequency ranges from short-term to continuous, depending on the expected variations in the savings and the length of the reporting period. If applicable, the predetermined schedule for data collection, evaluation, and reporting is defined in Exhibit A, Article 3-Performance Assurance Services Program.

Option C - Whole Facility: Savings are determined by measuring energy use at the whole Facility or sub-Facility level. Continuous measurements of the entire Facility's energy use are taken throughout the reporting period. If applicable, the predetermined schedule for data collection, evaluation, and reporting is defined in Exhibit A, Article 3-Performance Assurance Services Program.

Option D - Calibrated Simulation: Savings are determined through simulation of the energy use of the whole Facility, or of a sub-Facility. Simulation routines are demonstrated to adequately model actual energy performance measured in the Facility. This Option usually requires considerable skill in calibrated simulation. If applicable, the predetermined schedule for data collection, evaluation, and reporting is defined in Exhibit A, Article 3-Performance Assurance Services Program.

Option E – Stipulated: This Option is the method of measurement and verification applicable to FIMS consisting either of Operational Savings or where the end use capacity or operational efficiency; demand, energy consumption or power level; or manufacturer's measurements, industry standard efficiencies or operating hours are known in advance, and used in a calculation or analysis method that will stipulate the outcome. Both CLIENT and SIEMENS agree to the stipulated inputs and outcome(s) of the analysis methodology. Based on the established analytical methodology the Savings stipulated will be achieved upon completion of the FIM and no further measurements or calculations will be performed

during the Performance Guarantee Period. If applicable, the methodology and calculations to establish Savings value will be defined in Section 4.6 of this Exhibit C.

2.2 Table 2.1 below summarizes the first Annual Period's Guaranteed Savings (See Article 1, Tables 1.1 and 1.2) utilizing the applicable Measurement and Verification Options as applied to the referenced FIMs valued pursuant to the agreed upon amounts identified in Article 6 hereof.

Table 2.1 – Savings for First Annual Period by Option

		Energy/Utility Savings $						Operational Savings $	
		Measurement and Verification Options							
		A	B	C	D	E		E	
Facility	FIM Name or Type	Retrofit Isolation: Key Parameter Measuremen	Retrofit Isolation: All Parameter Measureme	Whole Facility	Whole Facility	Stipulated	Total Energy/ Utility Savings	Stipulated	Total Savings $
DPW Garage	Lighting	($27)	$0	$0	$0	$0	($27)	$142	$114
Town Hall	Lighting	$94	$0	$0	$0	$0	$94	$154	$248
Town Court	Lighting	$77	$0	$0	$0	$0	$77	$246	$323
Public Library	Lighting	$833	$0	$0	$0	$0	$833	$563	$1,396
DPW Garage	Building Envelope	$330	$0	$0	$0	$0	$330	$0	$330
Town Hall	Building Envelope	$407	$0	$0	$0	$0	$407	$0	$407
Town Court	Building Envelope	$145	$0	$0	$0	$0	$145	$0	$145
Public Library	Building Envelope	$138	$0	$0	$0	$0	$138	$0	$138
Town Hall	VRF Heating & Cooling Conversion	($93)	$0	$0	$0	$0	($93)	$2,136	$2,043
Public Library	EV Charging	$0	$0	$0	$0	$0	$0	$0	$0
DPW Garage	Solar PV	$0	$7,102	$0	$0	$0	$7,102	$0	$7,102
Town Hall	VRF Cooling Savings	$476	$0	$0	$0	$0	$476	$0	$476
	Totals	**$2,379**	**$7,102**	**$0**	**$0**	**$0**	**$9,481**	**$3,240**	**$12,721**

2.3 Table 2.2 identifies the source of Operational Savings defined and quantified by the Parties. The Parties affirm that such amounts are Stipulated Savings for purposes of calculating Annual Realized Savings and acknowledge that the Guaranteed Savings identified herein have been based on CLIENT'S affirmation. **OPERATIONAL SAVINGS SHALL NOT BE MEASURED OR MONITORED DURING THE PERFORMANCE GUARANTEE PERIOD.**

Table 2.2 - Source of Operational Savings

Account/Vendor	Description	Annual Cost $	# of Annual Periods Savings Are Applied	Annual Period Savings Begin
Lighting Replacements	Reduced annual lighting replacement costs	$1,014	20	1
Boiler Removal	Elimination of annual boiler maintenance	$2,136	20	1

2.4 SIEMENS has explained to the CLIENT and the CLIENT has satisfied itself as to how Operational Savings are incorporated into the Annual Realized Savings.

2.5 The Escalation Rate applicable to the Operational Savings is 3%.

Article 3: Performance Guarantee Period Responsibilities of the CLIENT

In addition to the CLIENT'S responsibilities under Article 6 of the Agreement, this Article details the responsibilities of the CLIENT in connection with the management and administration of the Performance Guarantee.

3.1 The CLIENT will provide a representative at each Facility to coordinate work and provide required data described below.

3.2 The CLIENT will provide SIEMENS with accurate Facility operating information as defined below and in the Contracted Baseline article of this Exhibit C during each Annual Period, within thirty (30) days of any Material Change that may increase or decrease energy usage.

3.3 Upon SIEMENS request, the CLIENT will provide SIEMENS with copies of utility bills within thirty (30) days of receipt by the CLIENT or provide internet access to utility data via utility vendor account to allow SIEMENS to assess building-level energy usage or perform utility bill monitoring and reporting. This monitoring and reporting will not be used for Measurement and Verification unless otherwise specified in the Measurement and Verification Plan identified in Article 4 of this Exhibit C.

3.4 The CLIENT will provide remote access to each energy management system (EMS) workstation or server impacted by the Work via the internet using SIEMENS Common Remote Service Platform (cRSP)® software package, as SIEMENS reasonably requests. All charges related to internet/data line installation, activation and communication services are the responsibility of the CLIENT.

3.5 In order to ensure continuous flow of trend interval data for monitoring and Measurement and Verification, the CLIENT will allow SIEMENS to install Middleware Services for Integrated Buildings (MSIB)®, Software Proxy (SWP)® and/or Datamate Advanced (DMA)®, as needed, on the EMS workstation or virtual server connected to the EMS network.

3.6 After Substantial Completion of EMS FIM Work, the CLIENT will be responsible for the maintenance, repair and replacement of all equipment, devices, and network infrastructure needed for the continuous trending of interval data associated with system points required for the Measurement and Verification Plan identified in Article 4 of this Exhibit C, unless otherwise specified in this Exhibit or in Exhibit A, Article 4 (Maintenance Services Program). Where it is not possible or reasonable to resolve trend interval data loss, SIEMENS will perform the Measurement and Verification according to Article 4.1 of this Exhibit C.

3.7 If required for the Work, CLIENT will provide and coordinate utility meter upgrade for interface with SIEMENS metering and data collection. All charges related for these upgrades are the responsibility of the CLIENT

Article 4: Measurement and Verification Plan

The following information is applicable to this Agreement:

Article 4.1 General Overview
Article 4.2 Option A - Retrofit Isolation: Key Parameter Measurement
Article 4.3 Option B - Retrofit Isolation: All Parameter Measurement
Article 4.4 Option C - Whole Facility
Article 4.5 Option D - Calibrated Simulation
Article 4.6 Option E – Stipulated-Energy/Utility Savings

4.1 **General Overview –**

The purpose of the Measurement and Verification (M&V) Plan is to identify the methods, measurements, procedures and tools that will be used to verify the Savings for each FIM which has energy/utility Savings. Savings are determined by comparing prior usage, consumption or efficiencies (defined as the "Baseline") against the post-FIM implementation usage, consumption or efficiencies. The Baseline usage, consumption or efficiencies are described in this Exhibit C, Article 5. The post-FIM implementation usage, consumption or efficiencies is defined as the Contracted Baseline and are described in this Exhibit C, Article 7.

If weather, energy use, or trend interval data cannot be obtained due to unforeseen circumstances beyond the control of SIEMENS or the CLIENT, the missing data will be estimated based on trend interval data from the current Annual Period, when practical, or previous corresponding Annual Period(s). When missing data cannot be reasonably estimated using historical data, savings calculations will be based on the original engineering data and parameters. All missing data methods will be discussed and mutually-agreed to by the CLIENT and SIEMENS.

4.2 **Option A - Retrofit Isolation: Key Parameter Measurement**

4.2.1 Lighting

Location(s): DPW Garage, Town Hall, Town Court, Public Library

Overview:

SIEMENS will retrofit the existing fixtures, lamps, and/or ballasts with more energy-efficient fixtures, lamps, and/or ballasts. Verification of electric energy Savings (kWh) achieved by the lighting retrofit shall be based upon a one-time measurement of the lighting power capacity under existing conditions, a one-time measurement of the lighting power capacity upon completion of the lighting retrofit project and agreed-upon annual operating hours. Spot wattage measurements of a random sample of baseline and post-installation fixture types or fixture circuits will be used to establish demand. Sample size for wattage measurements will be determined based on FEMP guidelines for sample size determination, with overall population sample size not to exceed 10% of the retrofit population.

Pre-Retrofit Measurement\Calculations:

$$kWh_{pre} = \sum_{i=1}^{n} (kW_{pre,x} \times Quantity_{pre,x} \times AOH_{pre})$$

Where:

kWh_{pre} = Total pre-retrofit annual electric consumption (kWh/yr)
$Quantity_{pre}$ = Count of each fixture-type based on as-built survey
AOH_{pre} = Pre-Retrofit Annual Operating Hours, stipulated per Exhibit F

Post-Retrofit Measurement\Calculations:

$$kWh_{post} = \sum_{i=1}^{n} (kW_{post,x} \times Quantity_{post,x} \times AOH_{post})$$

Where:

kWh_{post} = Post-retrofit annual electric consumption (kWh/yr)
$Quantity_{post}$ = Count of each fixture-type based on as-built survey
AOH_{post} = Post-Retrofit Annual Operating Hours, stipulated per Exhibit F

Savings Calculations:

Electric Savings (kWh/yr):

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

Cost Savings ($/yr):

$$\$_s = ([kWh_s] \times \$/kWh)$$

Where:

$\$_S$ = Total annual cost savings
$/kWh = contracted unit price for electricity at each location as per Article 6 of this Exhibit C

4.2.2 Building Envelope

Location(s): DPW Garage, Town Hall, Town Court, Public Library

Overview:

Energy savings are based on reducing the infiltration of unconditioned air through gaps and cracks in the building envelope by various air sealing methods. These savings will be verified by a one-time visual inspection of gap closure at door, windows, wall, and roof penetrations. The methodology shown below will be applied to each building where envelope improvements are to be implemented.

Pre-Retrofit Measurements\Calculations:

Area = Pre-retrofit estimates of total leakage area through penetrations in doors, windows, walls, and roof wall interface (ft^2), as per Table 4.2.2.1

Where:

A = Stack coefficient, based on number of building floors, as per Table 4.2.2.1

B = Wind coefficient, based on number of building floors, as per Table 4.2.2.1

Table 4.2.2.1 – Building Envelope Conditions

Location	Total Leakage Area (Area)	Stack Coefficient (A)	Wind Coefficient (B)
DPW Garage	2.9	0.0299	0.0157
Town Hall	2.2	0.0449	0.0184
Town Court	0.8	0.0299	0.0121
Public Library	0.6	0.0150	0.0119

Post-Retrofit Measurements\Calculations:

Area = Total leakage area sealed (ft^2), considered equal to pre-retrofit estimates based on verified completion of work during post-retrofit commissioning

$\Delta t_{H,O}$ = $HTSP_{Occ}$ – OAHT
$\Delta t_{H,U}$ = $HTSP_{Unocc}$ – OAHT
$\Delta t_{C,O}$ = OACT – CLSP

$$HLOCC = Area * EFL * \%INF \sqrt{A * \Delta t_{H,O} + B * Vel^2}$$

$$HLUNCC = Area * EFL * \%INF \sqrt{A * \Delta t_{H,U} + B * Vel^2}$$

$$CLOCC = Area * EFL \sqrt{A * \Delta t_{C,O} + B * Vel^2}$$

Where:

HLOCC = Occupied heating leakage rate (CFM)
HLUNCC = Unoccupied heating leakage rate (CFM)
CLOCC = Occupied cooling leakage rate (CFM)
EFL = Effective leakage area = 144 in^2/ ft^2
%INF = Infiltration vs. Exfiltration = 60%
$\Delta t_{H,O}$ = Occupied heating temperature difference
$\Delta t_{H,U}$ = Unoccupied heating temperature difference
$\Delta t_{C,O}$ = Occupied cooling temperature difference
$HTSP_{Occ}$ = Average occupied space heating temperature (°F), as per Table 4.2.2.2
$HTSP_{Unocc}$ = Average unoccupied space heating temperature (°F), as per Table 4.2.2.2
OAHT = Average outside air temperature during heating season = 33°F
OACT = Average outside air temperature during cooling season = 65.1°F
Vel = Average wind speed, as per Table 4.2.2.2

Table 4.2.2.2 – Building Conditions

Location	Average Occupied Space Heating Temperature ($HTSP_{Occ}$)	Average Unoccupied Space Heating Temperature ($HTSP_{Unocc}$)	Chiller Efficiency (EFF)	Efficiency of Support Equipment (KWSUPT)	Cooling Factor (CF)	Losses of Heating System (EOSH)	Average Wind Speed (Vel)	Weekly building occupied hours (HRSOCC)
DPW Garage	67	60	1.0	0.6	0%	9.75%	8.0	60.0
Town Hall	71	65	0.59	-	100%	20.00%	8.0	40.0
Town Court	70	65	1.1	0.6	25%	27.75%	7.0	60.0
Public Library	70	65	1.1	0.6	100%	26.05%	8.0	60.0

Savings Calculations:

Electric Savings (kWh/yr.):

kWh_S = TH * (EFF + KWSUPT)

TH = CLOCC * CBTU / 1000 * HRSOCC / 50 * 1,000,000 * CF / 12,000

Natural Gas Savings (CCF/yr.):

$NG_S = NG_O + NG_U$

$NG_O = \alpha * HLOCC * \Delta t_{H,O} * HRSOCC * HHPY / 168\ ^{hrs}/_{wk} / (1 - EOSH) / HHV_{NG}$

$NG_U = \alpha * HLUNOCC * \Delta t_{H,U} * (HHPY - (OCC_{HRS} * HHPY / 168\ ^{hrs}/_{wk})) / (1 - EOSH) / HHV_{NG}$

Where:

kWh_S = Annual electric savings (kWh/yr)
NG_S = Annual natural gas savings (CCF/yr)
NG_O = Occupied heating (natural gas) savings (CCF/yr)
NG_U = Unoccupied heating (natural gas) savings (CCF/yr)
TH = Cooling savings (Ton-hrs)
EFF = Average efficiency of Chiller (kW/Ton), as per Table 4.2.2.2
CBTU = Cooling BTU required to cool 1000 cfm/yr = 32.573 BTU
KWSUPT = Efficiency of support equipment (KWSUPT), as per Table 4.2.2.2
α = Conversion factor = 1.08 (BTUH * Min / ft^3 * °F)
CHPY = Total cooling hours per year = 3,672 hrs/yr
CF = Cooling factor, or percent of facility that is cooled (%), as per Table 4.2.2.2
HHPY = Total heating hours per year = 5,088 hrs/yr
HRSOCC = Weekly building occupied hours, as per Table 4.2.2.2
EOSH = Losses of heating system (%), as per Table 4.2.2.2
HHV_{NG} = High heating value of natural gas = 103,000 Btu/CCF

Cost Savings ($/yr):

$\$_S = (kWh_S * \$/kWh_x) + (NG_S * \$/CCF_x)$

Where:

$\$_S$ = Annual cost savings
$\$/kWh_x$ = Contracted electric energy cost per kWh at each location, as defined in Article 6 of this Exhibit C
$\$/CCF_x$ = Natural gas cost per CCF at each location, as defined in Article 6 of this Exhibit C

4.2.3 **VRF Heating and Cooling Conversion**
Location(s): Town Hall

Description
SIEMENS will replace the existing steam boiler with Variable Refrigerant Flow (VRF) heat pumps that are equipped with the ability to provide both central cooling and heating to the building. The electric savings (kWh/yr) will be verified by the manufacturer's specification of the installed unit's system efficiency (EFF) compared to the pre-existing efficiency of the standalone cooling systems used during the summer months and the elimination of the natural gas usage for heating.

Pre-retrofit measurements:
kWh_{pre} = Pre-retrofit electric energy usage during summer months = 22,032 kWh
NGU_{pre} = Pre-retrofit natural gas usage during non-summer months = 6,852 CCF

Post-Retrofit Measurements\Calculations:
kWh_{post} = Capacity * AOH * SU * EFF
kWh_c = (NGU – DHW – BE) * 100,000 / 3,412 / COP
Where:

kWh_{post}	= Post-retrofit electric usage of new system (kWh/yr)
AOH	= Annual operating hours = 3,672
Capacity	= Cooling system capacity (Tons) = 20 Tons
SU	= Scheduled usage = 30%
EFF	= New cooling system efficiency (kW/Ton)
kWh_c	= Total natural gas savings conversion (kWh)
BE	= Building envelope savings = 688 CCF
COP	= Coefficient of performance = 3.2
DHW	= Domestic hot water load = 479.7 CCF

Savings Calculations:
Electricity Savings (kWh/yr):
$kWh_s = (kWh_{pre} - kWh_{post}) + (-kWh_c)$

Cost Savings ($/yr):
$\$_S = (kWh_s \times \$/kWh)$

Where:

$\$_S$	= Total annual cost savings
$/kWh	= contracted unit price for electricity at each location as per Article 6 of this Exhibit C

4.3 Option B - Retrofit Isolation: All Parameter Measurement

4.3.1 Solar PV

Location(s): DPW Garage

Description:

SIEMENS will install a 91.64 kW solar photovoltaic system on portions of the DPW garage roof. Electrical energy savings will be achieved by the production of electricity by the solar photovoltaic panels. Verification of these energy savings will be based on 15-minute trend intervals of actual electricity production (kWh) and solar insolation (kWh/m^2) measured for the first annual period.

There may be changes in the production of electricity for which a calculated adjustment is necessary. Actual production will be adjusted to reflect the average sunlight conditions used to establish the guarantee based on the overall efficiency with which sunlight is converted to electricity by the installed system. This conversion efficiency is known as the performance ratio and will be determined based on the contracted rated system power capacity (kW-dc) and continuous monitoring of generated electricity (kWh) and solar insolation (kWh/m^2). Actual production is adjusted to average sunlight conditions because the power capacity of the installed array is guaranteed although availability of sunlight is not.

If SIEMENS is unable to obtain solar insolation (kWh/m^2) data through the data acquisition system, SIEMENS reserves the right to utilize global horizontal irradiance data from Solargis (or equivalent) and convert it to plane of array to determine the adjusted actual production.

Post-Retrofit Measurements\Calculations:

$E_{Adj} = PR_{Act} * G_{Avg} * P$

$PR_{Act} = E / (G * P)$

Where:

- E_{Adj} = Monthly adjusted actual production (kWh)
- PR_{Act} = Actual monthly system performance ratio (%) reflecting overall sunlight to electricity conversion
- G_{Avg} = Average monthly solar insolation (kWh/m^2), per Table 4.3.1.1
- P = Contracted rated system power capacity = 91.64 kW
- E = Actual monthly production of solar array (kWh), measured continuously via Data Acquisition System
- G = Monthly solar insolation (kWh/m^2), measured continuously via Data Acquisition System

Table 4.3.1.1 - Monthly Insolation (G_{Avg}), Monthly Performance Ratio, and Guaranteed Annual Performance Ratio for Annual Period 1

Month	Expected Monthly Solar Insolation (G_{avg}, kWh/m²)	Guaranteed System Performance Ratio (PR)
January	42.4	0.524
February	62.2	0.632
March	103.9	0.749
April	134.8	0.798
May	171.4	0.791
June	175.3	0.788
July	181.7	0.783
August	161.1	0.805
September	123.8	0.821
October	78.5	0.845
November	49.9	0.782
December	34.9	0.570
Total	**1,319.8**	**0.773**

Table 4.3.1.2 - Guaranteed Electricity Generation (kWh)

Year	Expected Solar PV System Electricity Generation (kWh)
Annual Period 1	88,776

Savings Calculations:

Electric Energy Savings (kWh/yr):

$kWh_S = \Sigma\{E_{Adj}\}$ summed for each month of the annual period

Cost Savings ($/yr):

$\$_S = kWh_S * \$/kWh_x$

Where:

kWh_S = Annual electric savings (kWh/yr)
$\$_S$ = Annual cost savings
$/kWh = Contracted unit price for electricity at each location per Article 6 of this Exhibit C

4.4 **Option C - Whole Facility**

4.5 **Option D – Calibrated Simulation**

4.6 **Option E - Stipulated-Energy/Utility Savings**

Article 5: Baseline Data

5.1 The year(s) selected as the Baseline Period starts in January, 2021 and ends in December 2021. Table 5.1 outlines the utility consumption that occurred during this Baseline Period. This Baseline Period's Facility utility consumption will be used as the reference for comparing the Facility's utility consumption during the Performance Guarantee Period in order to determine the Annual Realized Savings.

In addition to the baseline consumption below, Lima Town Hall will see an increase in utility consumption due to the introduction of cooling to all spaces via the new VRF heat pump system. Currently, the building has very minimal cooling provided only by portable window-mounted cooling units in a small number of spaces.

As a result, Lima Town Hall will consume an additional 12,960 kWh of electricity to cool the building.

Table 5.1 - Baseline Utility Consumption

Lima Town Hall	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Electric	kWh	1,027	1,131	1,020	981	1,223	1,146	1,334	1,076	1,004	1,053	1,294	1,170
N. Gas	CCF	1,479.0	1,206.6	1,165.4	705.9	214.5	3.6	4.1	3.8	4.2	289.3	761.9	1,014.0
Lima Town Court	**Units**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Electric	kWh	675	547	432	364	914	1,101	1,267	754	310	456	636	652
N. Gas	CCF	151.3	239.9	306.4	193.3	92.6	20.9	14.4	23.8	10.7	86.5	472.1	404.5
Lima Public Library	**Units**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Electric	kWh	7,461	5,050	2,787	1,463	1,219	1,440	1,463	1,122	1,073	2,908	4,337	3,578
N. Gas	CCF	468.4	541.7	403.0	209.5	113.6	31.7	39.8	47.1	44.9	47.2	242.2	432.3
Lima DPW Garage	**Units**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Electric	kWh	556	0	0	0	0	0	0	0	0	0	270	991
N. Gas	CCF	1,685.3	1,247.6	1,356.8	619.3	202.2	27.8	4.7	5.3	4.7	296.0	524.2	935.0

5.2 The operating practices during the Baseline Period determine the utility consumption shown in Table 5.1. This data indicates the operating characteristics that were in effect during the Baseline Period. The Guaranteed Savings provided under this Agreement are based on the efficiencies gained by implementing the Work and implementing the Contracted Baseline in Article 7 of this Exhibit C.

Table 5.2.1 Baseline Operating Parameters

Building	Start	Stop	Days	Occupied Temperature	Unoccupied Temperature
Lima Town Hall	8:30 AM	6:00 PM	Monday – Friday	Heating 71°F Cooling 70°F	Heating 65°F Cooling 78°F
Lima Town Court	9:00 AM	12:00 PM	Monday – Friday	Heating 70°F Cooling 70°F	Heating 65°F Cooling 78°F
Lima Public Library	9:00 AM 9:00 AM	8:00 PM 12:00 PM	Monday – Friday Saturday	Heating 70°F Cooling 70°F	Heating 65°F Cooling 78°F
Lima DPW Garage	7:00 AM	4:00 PM	Monday – Friday	Heating 67°F	Heating 60°F

5.3 Applicable codes - Federal, State, County or Municipal codes or regulations are applicable to the use and operation of the Facility. SIEMENS will maintain the current level of Facility compliance relative to applicable codes unless specifically outlined to the contrary below. Unless specifically set forth in the Scope of Work and Services, Exhibit A, nothing herein should be construed as to require SIEMENS to provide additional work or services in the event that the current applicable code or regulation is modified.

Article 6: Utility Rate Structures and Escalation Rates

6.1 Utility costs used for Savings calculations will be based on the utility rates and Escalation Rates, as provided in the Table below. Each Escalation Rate will be applied annually to the utility rate.

Table 6.1 – Utility Rates and Escalation Rates

Location	Electric Utility Provider	Blended Electric Energy ($/kWh)	Natural Gas Utility Provider	Natural Gas ($/CCF)	Rate Escalation
Lima Town Hall	National Grid	$0.0617	National Grid	$0.5487	3%
Lima Town Court	National Grid	$0.1258	National Grid	$0.5516	3%
Lima Public Library	National Grid	$0.1335	National Grid	$0.5408	3%
Lima DPW Garage	National Grid	$0.1260	National Grid	$0.5489	3%

Article 7: Contracted Baseline Data

7.1 The following tables detail the Facility operating parameters that are required to be implemented on the Guarantee Date or on such time as agreed upon by the Parties. This specific configuration of Facility operating parameters is the Contracted Baseline and failure of the CLIENT to maintain the Contracted Baseline may result in a Material Change which may require a modification of the Performance Guarantee pursuant to Article 4 of the Agreement.

Table 7.1 Operating Hours and Temperatures

Building	Start	Stop	Days	Occupied Temperature	Unoccupied Temperature
Lima Town Hall	8:30 AM	6:00 PM	Monday – Friday	Heating 71°F Cooling 70°F	Heating 65°F Cooling 78°F
Lima Town Court	9:00 AM	12:00 PM	Monday – Friday	Heating 70°F Cooling 70°F	Heating 65°F Cooling 78°F
Lima Public Library	9:00 AM 9:00 AM	8:00 PM 12:00 PM	Monday – Friday Saturday	Heating 70°F Cooling 70°F	Heating 65°F Cooling 78°F
Lima DPW Garage	7:00 AM	4:00 PM	Monday – Friday	Heating 67°F	Heating 60°F