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SECTION 7: BUDGET AND BUDGET NARRATIVE (45 POSSIBLE POINTS)

SECTION 7A: BUDGET DETAIL (20 POSSIBLE POINTS)

Budget Tables:

BUDGET BY YEAR							
COST-TYPE	CATEGORY	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL
Direct Costs	TOTAL PERSONNEL	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL FRINGE BENEFITS	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL TRAVEL	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL EQUIPMENT	\$10,885,597	\$2,349,943	\$0	\$0	\$0	\$13,235,540
	TOTAL SUPPLIES	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL CONTRACTUAL	\$4,431,980	\$6,222,301	\$0	\$0	\$0	\$10,654,281
	TOTAL OTHER	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL DIRECT	\$15,317,577	\$8,572,244	\$0	\$0	\$0	\$23,889,821

BUDGET BY MEASURE			
Measure	Budget Line	Cost	% of Total Project Cost
1- Water & Wastewater Solar PV			
	<i>Equipment</i>	\$11,307,512	
	<i>Contractual</i>	\$8,530,228	
	<i>Total Measure Cost (Equipment + Contractual)</i>	\$19,837,740	83%
2 - Municipal Buildings Solar PV			
	<i>Equipment</i>	\$884,399	
	<i>Contractual</i>	\$920,497	
	<i>Total Measure Cost (Equipment + Contractual)</i>	\$1,804,896	8%
3 - City-wide Lighting Program			
	<i>Equipment</i>	\$858,175	
	<i>Contractual</i>	\$702,143	

BUDGET BY MEASURE			
Measure	Budget Line	Cost	% of Total Project Cost
	<i>Total Measure Cost (Equipment + Contractual)</i>	<i>\$1,560,318</i>	<i>7%</i>
4 - Building Automation Program			
	<i>Equipment</i>	<i>\$185,454</i>	
	<i>Contractual</i>	<i>\$501,413</i>	
	<i>Total Measure Cost (Equipment + Contractual)</i>	<i>\$686,867</i>	<i>3%</i>

The total cost of all 4 measures combined is \$23,889,821.

Budget Categories Explained:

Personnel - Total cost is \$0. The personnel who would carry out this project would be covered by the contractual costs represented in the “Contractual” budget line in our Budget table. This would include Schneider Electric, who we’ve identified via the CFR.200 compliant OMNIA Cooperative Purchasing mechanism, and the personnel of any local subcontractors we are able to work with Schneider to identify and use.

Fringe Benefits, Travel - Total cost is \$0. Not applicable. We would not be using grant funds for travel or fringe benefits.

Equipment - Total Cost is \$13,235,540. For a project comprising four distinct measures focusing on renewable energy, energy efficiency, and sustainable infrastructure enhancements, a detailed breakdown of necessary equipment and components is essential for successful implementation. Below, each measure is broken down into its requisite equipment needs. The components listed below make up the material costs that would fall under the “Equipment” Budget line as they are all over \$5,000. These materials are all necessary to carry out the project as they all either go towards the Renewables scope, the LED scope, the Building Automation scope, or the Micro-grid Scope.

Measure 1: Renewable Energy at the Wastewater and Water Treatment Plants with Microgrid at the Water Treatment Plant – Equipment and Components - \$11,307,512

- *Ground-Mounted Solar PV Panels For the Wastewater Treatment Plant*
 - Solar photovoltaic (PV) panels
 - actual panels that would absorb the energy from the sunlight
 - Mounting systems (racks, posts, foundations)
 - panels would go onto these mounting systems to keep them securely in place
 - DC to AC inverters
 - this is the technology that actually convert the absorbed energy into electricity
 - Wiring and Connectors
 - needed to connect the working components of the solar panel system (ex: panels and other panels, panels and inverters)
 - Grounding equipment

- this ensures safety, prevents electrical shocks, and protects the system from lightning strikes and power surges
- *Solar PV Panels for Water Treatment Ponds*
 - Floating mounting systems (buoyant rack system engineered to hold PV panels)
 - panels would go onto these mounting systems to keep them securely in place
 - Solar PV panel systems (mounted into buoyancy supports).
 - actual panels that would absorb the energy from the sunlight.
 - Waterproof wiring and connectors.
 - This wiring ensures that the PV system's electrical wiring is safe in an aquatic environment. needed to connect functioning parts of the system.
 - DC to AC inverters
 - Converts direct current (DC) electricity, which is what a solar panel generates, to alternating current (AC) electricity, which the electrical grid uses.
 - Anchoring and mooring systems for stability
 - Keeps the floating system physically stable and minimizes movement as they float atop the waters.
- *Microgrid Capabilities:*
 - Microgrid controller system
 - orchestrates the operation of all microgrid components, managing power generation, distribution, and storage to maintain stability and efficiency within the microgrid.
 - Energy storage systems (batteries)
 - store excess energy produced during low demand periods and supplies this energy during high demand periods or when generation is low, provides a smoothing buffer when transitioning between energy sources enhancing the microgrid's reliability and efficiency.
 - Smart meters and management software
 - monitor and report real-time energy usage and production, while management software analyzes this data to optimize energy distribution and consumption, improving overall energy efficiency.
 - Switchgear and protection equipment
 - controls the flow of electricity within the microgrid and protects the system from overloads, faults, or other electrical issues, ensuring safe and reliable operation.

Measure 2: Renewable Energy Implementation on Municipal Buildings – Equipment and Components -\$884,399

- *Solar PV Panels for Roof and Ground Mounting:*
 - Solar PV panels
 - actual panels that would absorb the energy from the sunlight
 - Safety equipment (e.g., arrest systems for installation)
 - for the roof panels; to eliminate fall hazards
 - Roof mounting hardware
 - for the buildings where it's more prudent to place the panels on the roof, panels would go onto these mounting systems to keep them securely in place

- Ground mounting hardware
 - this ensures safety, prevents electrical shocks, and protects the system from lightning strikes and power surges
- DC to AC inverters
 - this is the technology that actually convert the absorbed energy into electricity
- Wiring and electrical components
 - needed to connect the working components of the solar panel system (ex: panels and other panels, panels and inverters)

Measure 3: City-wide LED Lighting Upgrades - Equipment and Components - \$858,175

- ***LED Light Fixtures***
 - Indoor LED fixtures for municipal buildings
 - the actual lighting fixtures that would replace outdated and inefficient lighting
 - Outdoor LED lighting for streets, parks, and public spaces
 - the actual lighting fixtures that would replace outdated and inefficient lighting

Measure 4: Implementation of Building Automation Program – Equipment and Components - \$185,454

- ***Building Automation Program (BAP)***
 - Sensors
 - monitors temperature, occupancy, light levels, humidity and CO2, and provides data for the controllers and actuators.
 - Controllers and actuators
 - controllers receive data from sensors and execute programmed responses by sending signals to actuators, which physically adjust the systems
 - Centralized management software
 - Software that allows for all parts of the BAP to work together. Also diagnoses system faults, which is necessary for proper and prolonged function.
 - Verification and monitoring of Performance Management Program energy reductions.
 - User interfaces (touchscreen panels, desktop software)
 - allows users to leverage the power of the BAP

Contractual - Total Cost is \$10,654,281 - As clarified previously, **the contractual costs we have identified in our budget would cover the planning, design, and installation costs from a contractor, as well as the costs of local subcontractors from our area to carry out the different aspects of our project.** We need to outsource this labor because we do not have the capacity and experience among our personnel to carry this out properly at this time. We considered what it would take to do this in-house, and have realized that pursuing a turn-key solution through the CFR.200-compliant OMNIA maximizes our chances of being responsible stewards of any federal dollars we might win. Our research shows that Schneider Electric has 32 years of experience in the ESPC industry and over 1000 Energy Service projects sold with a total value in excess of \$4.1 Billion. Guidehouse Insights has ranked Schneider Electric as the #1 ESCO globally for the last 7 consecutive years and more directly related to this project they are rated as the #1 Microgrid Integrator in 2023. Schneider Electric has

implemented solar PV and Microgrid projects for such clients as the U.S. Coast Guard in Puerto Rico and Yokota Air Base in Japan along with many school districts and cities across the United States. While we have the ability to implement the proper operation and maintenance of the proposed measures, we know that the execution of the measures themselves must come from elsewhere. This is all to ensure that the project is done properly, one time, and that the expected benefits outlined in Section 4 of this application are delivered. **Contractual Cost by measure is outlined below:**

Measure 1 – Renewable Energy at the Wastewater and Water Treatment Plants with Microgrid at the Water Treatment Plant - Cost is \$8,530,228

- *Final Stage Design and Engineering Services:* Create custom designs for the integration of renewable energy systems, including solar panels and a microgrid, for energy management and resilience.
- *Community Outreach and Engagement:* Plan and execute community outreach initiatives to educate and involve local residents. Help us execute our engagement strategy that would target the youth in the city to teach them about the project and propel interest in STEAM fields.
- *Installation and Project Management:* Oversee the installation of renewable energy systems and the microgrid, ensuring they are properly integrated with existing infrastructure.
 - This includes sourcing, making agreements with, and collaborating with, any relevant sub-contractors from the local area via engagement with entities like the local Small Business Administration offices. This also includes going beyond the standard approach to involve disadvantaged businesses and taking active steps to include them such as:
 - Utilize M/WBE listings and follow up initial solicitation of interest by contacting M/WBEs to determine with certainty whether these businesses are interested.
 - Actively identify portions of the work that can be performed by M/WBEs in order to increase participation.
 - Establish delivery schedules, where the requirements of the work permit, which would encourage the participation of M/WBEs.
 - Provide interested M/WBEs with adequate information about plans, specifications, timing and other requirements of the proposed project
 - Use the services of outreach programs sponsored by the Minority Business Development Agency and/or the Small Business Administration to recruit bonafide firms for placement on the M/WBE bidders' list.
- *Regulatory Compliance:* Navigate local, state, and federal regulations to ensure the project meets all legal and environmental standards such as OSHA and others.
- *Installation and Commissioning:* Oversee the installation of renewable energy systems and the microgrid, ensuring they are properly integrated with existing infrastructure.
 - source, hire and coordinate with local subcontractors to make
- *Training and Capacity Building:* Provide training for local staff on operating and maintaining the new systems.
- *Warranties and Maintenance Agreements:* Offer long-term maintenance services and warranties for the installed systems, ensuring their reliability and performance over time.
- *Cyber Security package* - allows for protection of micro-grid systems, which is vital in the digital age

Measure 2 – Renewable Energy Implementation on Municipal Buildings - Cost is \$920,497

- *Final Stage Design and Engineering Services:* Design and install appropriate renewable energy solutions, such as rooftop and ground-mounted solar panels, tailored to each building.
- *Regulatory Compliance:* Navigate local, state, and federal regulations to ensure the project meets all legal and environmental standards such as OSHA and others.
- *Community Outreach and Engagement:*
 - Same services as listed for Measure 1
- *Installation and Project Management:*
 - All the same services as listed for Measure 1.
- *Integration with Existing Systems:* Ensure that new renewable energy systems are compatible with existing building infrastructure and energy management systems.
- *Monitoring and Verification:* Implement energy monitoring tools to track the performance of renewable energy installations and verify energy savings.
- *Training and Capacity Building:* Provide training for local staff on operating and maintaining the new systems.
- *Warranties and Maintenance Agreements:* Offer long-term maintenance services and warranties for the installed systems, ensuring their reliability and performance over time.

Measure 3 – City-wide LED Lighting Upgrades - Cost is \$702,143

- *Final Stage Design and Engineering Services:*
 - Develop detailed plans for the replacement of existing lights with energy-efficient LED technology, including outdoor street lights and lighting in public buildings.
- *Regulatory Compliance:*
 - Navigate local, state, and federal regulations to ensure the project meets all legal and environmental standards such as OSHA and others.
- *Community Outreach and Engagement:*
 - Same services as listed for Measure 1
- *Installation and Project Management:*
 - All the same services as listed for Measure 1.
- *Training and Capacity Building:*
 - Provide training for local staff on operating and maintaining the new systems.
- *Disposal and Recycling:*
 - Ensure the responsible disposal or recycling of old lighting fixtures and bulbs.
- *Community Outreach and Engagement:* Plan and execute community outreach initiatives to educate and involve local residents. Help us execute our engagement strategy that would target the youth in the city to teach them about the project and propel interest in STEAM fields.

Measure 4 – Implementation of Building Automation Program - Cost is \$501,413

- *Final Stage Design and Engineering Services:* Design and implement a tailored building automation program, integrating HVAC, lighting, and other systems for optimal energy efficiency.

- *Software and Interface Integration:* Install and configure software solutions for centralized monitoring and management of building systems.
- *Training and Support:* Provide comprehensive training for staff on using the new automation systems, along with ongoing technical support.
- *Cyber Security features* - safeguards in the Building Automation Program would work with the city's internal firewall protections to allow for protection of building systems and micro-grid systems, which is vital in the digital age.

Supplies -Total Cost is \$0. This is not an applicable budget line for our budget.

Indirect Costs Total Cost is \$0- This is not applicable to our application.

SECTION 7B: EXPENDITURE OF AWARDED FUNDS (15 POSSIBLE POINTS)

Our organization is committed to the diligent and responsible management of awarded grant funds, ensuring their expenditure is both timely and efficient within the grant period. With a track record of successfully handling grants, we have established internal systems and controls that adhere to the Generally Accepted Accounting Principles (GAAP). These practices are designed to guarantee the accurate reporting and tracking of expenditures, facilitating transparency and accountability in every financial transaction.

To bolster our commitment to financial integrity, we have implemented robust procedures that align with both state and local laws governing internal financial controls for public institutions. This includes comprehensive audits, regular financial reviews, and the maintenance of detailed records, ensuring our compliance with the highest standards of fiscal responsibility. Our organization has been proactive in adapting our systems to meet specific requirements for managing federal funds, including those from the various phases of federal stimulus funding that has been allocated during the recent economic difficulties. We believe that these safeguards showcase our capability to properly accept, allocate, and utilize such funds in alignment with grant objectives.

SECTION 7C: REASONABLENESS OF COSTS (10 POSSIBLE POINTS)

Please see our costs laid out below and quick notes as to why they are all reasonable. Should we be awarded (in part or in whole), and thus be able to execute our project, there would be further reviews of price reasonableness to ensure responsible stewardship of federal dollars.

Equipment - Total Cost is \$13,235,540.

Measure 1: Renewable Energy at the Wastewater and Water Treatment Plants with Microgrid at the Water Treatment Plant – Equipment and Components - \$11,307,512

- *Ground-Mounted Solar PV Panels For the Wastewater Treatment Plant*
 - Solar photovoltaic (PV) panels enable the first step in capturing of solar energy
 - Mounting systems (racks, posts, foundations) are necessitated to ensure proper function and physical safety.
 - DC to AC inverters enable the conversion of solar energy into electricity
 - Wiring and Connectors are needed to connect the working components of the system
 - Grounding equipment ensures safety and also prolongs the useful life of the panels
- *Solar PV Panels for Water Treatment Ponds*
 - Floating solar PV panel systems (including buoyancy supports). These are necessary to ensure that the panels stay floating and functional.

- Waterproof wiring and connectors ensure that the PV system's electrical wiring is safe in an aquatic environment.
- DC to AC inverters - see initial explanation of necessity in Section 7C under Measure 1
- Anchoring and mooring systems for stability keep the floating system physically stable
- **Microgrid Capabilities:**
 - Microgrid controller system - as described in the budget detail, the microgrid ecosystem cannot run without this.
 - Energy storage systems (batteries) - these are necessary to leverage the climate resilient backup power features of a microgrid
 - Smart meters and management software - collection system data is needed in order for the software to maximize system efficiency and alert users of anything needing attention
 - Switchgear and protection equipment - controls the flow of electricity within the microgrid and protects the system from overloads which prolongs useful life.

Measure 2: Renewable Energy Implementation on Municipal Buildings – Equipment and Components - \$884,399

- **Solar PV Panels for Roof and Ground Mounting:**
 - Solar PV panels - same reason as Measure 1 panels
 - Safety equipment - same reason as Measure 1 safety equipment
 - Roof mounting hardware would keep the panels secure, for safety of people and the equipment
 - Ground mounting hardware - for safety, and protection against surges and lightning
 - DC to AC inverters - same reason as inverters in Measure 1
 - Wiring and electrical components - without them electricity would not be carried throughout the solar panel system.
 -

Measure 3: City-wide LED Lighting Upgrades - Equipment and Components - \$858,175

- **LED Light Fixtures**
 - Indoor LED fixtures for municipal buildings - this is the core tech for this measure.
 - Outdoor LED lighting for streets, parks, and public spaces - core tech for this measure.

Measure 4: Implementation of Building Automation Program – Equipment and Components - \$185,454

- **Building Automation Systems (BAS)**
 - Sensors - without these there would be no data for the controllers and actuators.
 - Controllers and actuators - without these performance data cannot be leveraged by the software that maximizes efficiency
 - Centralized management software - this tech plays a big role in maximizing efficiency
 - User interfaces (touchscreen panels, desktop software) - users need to track data, and control the system to ensure proper function

Contractual - Total Cost is \$10,654,281

Measure 1 – Renewable Energy at the Wastewater and Water Treatment Plants with Microgrid at the Water Treatment Plant - Cost is \$8,530,228

- *Final Stage Design and Engineering Services:* This ensures that project execution is smooth and thus maximizes realization of outputs and outcomes
- *Community Outreach and Engagement:* Needed to ensure our project has holistic community impact
- *Installation and Project Management:* The installation is perhaps the most critical component of our project plan. Without it, the tech never goes into function. The project management offered allows us to ensure the project is completed on time and properly, while maximizing chances to include disadvantaged small businesses.
- *Regulatory Compliance:* Compliance is a must to execute a properly functioning project
- *Training and Capacity Building:* Our staff must be able to monitor and take good care of the tech we are requesting.
- *Warranties and Maintenance Agreements:* this is necessary to protect the investment of government dollars.
- *Cyber Security features -* cyber protection is vital to the success of the project. software that is linked to our water systems must be protected

Measure 2 – Renewable Energy Implementation on Municipal Buildings - Cost is \$920,497

- *Final Stage Design and Engineering Services:* same reasons as listed for Measure 1
- *Regulatory Compliance:* same reasons as listed for Measure 1
- *Community Outreach and Engagement:* same reasons as listed for Measure 1
- *Installation and Project Management:* same reasons as listed for Measure 1
- *Integration with Existing Systems:* necessary to make sure the software solutions are compatible with our buildings.
- *Monitoring and Verification:* Implement energy monitoring tools to track the performance of renewable energy installations and verify energy savings.
- *Training and Capacity Building:* same reasons as listed for Measure 1
- *Warranties and Maintenance Agreements:* same reasons as listed for Measure 1
- *Disposal and Recycling:* we must have this as a feature to protect the environment

Measure 3 – City-wide LED Lighting Upgrades - Cost is \$702,143

- *Final Stage Design and Engineering Services:* same reasons as listed for Measure 1
- *Regulatory Compliance:* same reasons as listed for Measure 1
- *Community Outreach and Engagement:* same reasons as listed for Measure 1
- *Installation and Project Management:* same reasons as listed for Measure 1
- *Training and Capacity Building:* same reasons as listed for Measure 1
- *Disposal and Recycling:* same reasons as listed for Measure 1
- *Community Outreach and Engagement:* same reasons as listed for Measure 1

Measure 4 – Implementation of Building Automation Program - Cost is \$501,413

- *Final Stage Design and Engineering Services:* same reasons as listed for Measure 1
- *Software and Interface Integration:* Software must be compatible or the project cannot realize projected reductions.

- *Training and Support*: same reasons as listed for Measure 1
- *Cyber Security features*: same reasons as listed for Measure 1