

Workplan

SECTION 1: OVERALL PROJECT SUMMARY AND APPROACH (45 POSSIBLE POINTS)

SECTION 1A: DESCRIPTION OF GHG REDUCTION MEASURES (20 POSSIBLE POINTS)

The City of Broken Arrow, Oklahoma has embarked on an ambitious “Energy Efficiency Upgrade Program” for our municipal facilities and plants. To date, we have completed a city-wide Investment Grade Audit (IGA) of our facilities, which has identified several efficiency and GHG reduction opportunities. As a result, the city is currently in the process of implementing efficiency and HVAC upgrades at our Historical Museum, and solar power generation at our Police & Fire Training site. Our proposal for the Climate Pollution Reduction Grants (CPRG) program focuses on introducing further renewable energy solutions and energy efficiency enhancements identified, in the IGA, across municipal facilities. Specifically, we aim to install solar photovoltaic (PV) panels on 4 municipal buildings (Animal Shelter, Nienhuis City Park, Operations Building, Public Safety Complex), the wastewater reclamation plant, and water treatment plant. In addition, LED lighting upgrades would be performed within buildings at the water & wastewater treatment plants along with several other municipal buildings throughout the city. A Building Automation System (BAS) would be installed on the largest, most energy intensive buildings allowing further reduction in GHG emissions in addition to providing the foundation for further reductions in the future through improved operations.

Broken Arrow is within the service area of Priority Climate Actions Plans (PCAPs) developed by both the State of Oklahoma and the Indian Nations Council of Governments (INCOG). The initiatives included in this grant are designed to reduce reliance on fossil fuels, decrease greenhouse gas (GHG) emissions, and align with both of the PCAPs mentioned. The applicability of measures outlined in the State of Oklahoma and INCOG (PCAPs) are included with the description of each measure below.

As stated above, we have identified four key GHG reduction measures for our project:

1. **Renewable Energy at the Water Treatment Plant & Wastewater Reclamation Plant:** This measure constitutes the largest component of this application. The comprehensive measure includes installing ground mounted solar PV panels at the wastewater reclamation plant, installing solar PV panels on the surface of one of the city water treatment ponds, and integrating microgrid capabilities for enhanced energy resilience and management at both sites. This measure aligns with the CPRG’s eligible project categories of **Waste, Water, and Sustainable Materials Management Sector: Installation of renewable energy and energy efficiency measures**. *Relevant PCAP Citation - State of Oklahoma PCAP Page 12*
 - a. This measure is needed to make some of our most energy intensive processes more sustainable and reduce GHG emissions. Currently, both our waste water treatment plant and our water treatment plants rely on diesel generators and due to being at the end of the power line, our wastewater treatment plant suffers from brownouts. Our water plant also experiences power issues at a rate that is disruptive to operations. Between the diesel generators and the interruptions in power, we need to make these operations more sustainable.
2. **Renewable Energy Implementation on Municipal Buildings:** This measure involves the installation of solar PV panels on various municipal buildings to harness solar energy efficiently. This aligns with the CPRG’s eligible project category of **Electric Power Sector: Installation of renewable energy and energy storage systems on municipal facilities**. *Relevant PCAP Citation - State of Oklahoma PCAP Page 12*
 - a. This measure is needed to make some of our most energy intensive processes more sustainable and reduce GHG emissions.

3. **City-wide LED Lighting Upgrades:** This measure includes installing efficient LED lighting in municipal buildings including the water and wastewater plants throughout the city. The IGA results indicated that this measure results in the highest GHG emissions reduction per dollar spent than any other retrofit. This measure aligns with the CPRG's eligible project categories of **Buildings Sector: Implementation of a building energy performance management program for government-owned buildings. Relevant PCAP Citation - State of Oklahoma PCAP Page 12**
 - a. This measure is needed to make our municipal buildings more energy efficient and reduce GHG emissions.
4. **Implementation of Building Automation Program:** This comprehensive measure includes installing Building Automation Systems (BAS) in the largest and most energy intensive buildings in the city. This would allow for building HVAC control and scheduling leading to dramatic GHG reductions as well as service as the basis for building benchmarking and portfolio management. This measure aligns with the CPRG's eligible project categories of **Buildings Sector: Implementation of a building energy performance management program for government-owned buildings, Buildings Sector: Implementation of a new benchmarking and building performance standards. Relevant PCAP Citation - State of Oklahoma PCAP Page 12**
 - a. This measure is needed to maximize the energy savings at multiple municipal buildings and thus the GHG emissions reductions as well.

Project Tasks and Milestones (by GHG reduction Measure)

For the successful installation of building automation systems, LED Lighting, solar panels on municipal buildings, solar panels at a wastewater plant, and solar panels at a water treatment plant, including microgrid capabilities at the latter, a structured approach focusing on tasks and milestones is essential. Below, the tasks and milestones for each measure (Renewable Energy Implementation on Municipal Buildings - REIMB, and Renewable Energy and Energy Efficiency at the Water Treatment Plant - REEE-WTP) are outlined in detail. As you read through the tasks and milestones consider that we have structured this project so each of the described measures are executed in a parallel fashion. This concurrent installation approach maximizes the efficiency of the project management resources of both the city and the contractor. This approach also allows for deployment of the measures more quickly, so the program begins to realize GHG reductions in a more timely manner.

GHG Reduction Measure 1: Renewable Energy at the Wastewater and Water Treatment Plants with Microgrid at the Water Treatment Plant – Tasks:

- **Task 1.1. Final Study for Floating Solar Panels and ground mounted systems:** Conduct final studies to assess the viability of floating solar and ground mounted installations at the two plants.
- **Task 1.2 Design of Solar PV Systems:** Design the floating solar PV system for the water treatment plant and ground mounted PV system for the wastewater plant. Confirm array sizing is appropriate for the site and utility infrastructure.
- **Task 1.3. Procurement of Systems and Materials:** Source and procure all equipment and materials required for the floating solar installation and ground mounted solar installation.
- **Task 1.4 Permitting and Approvals for Solar:** Secure necessary permits and approvals specifically for the deployment of floating solar panels on a water body.
- **Task 1.5. Installation of Solar PV at the two sites:** Install the floating solar system at the water treatment plant and the ground mounted solar system at the wastewater plant.
- **Task 1.6. Microgrid Integration and Commissioning:** Integrate microgrid capabilities to optimize energy use and manage the newly installed renewable energy resources effectively with existing on-site backup

generation. Perform comprehensive system testing and commission the installations.

GHG Reduction Measure 1: Renewable Energy at the Wastewater and Water Treatment Plants with Microgrid at the Water Treatment Plant – Milestones:

- **Milestone 1.1** - Completion of site assessment and energy needs analysis (Month 3)
- **Milestone 1.2** - Finalized designs for solar, interconnection submitted (Month 6)
- **Milestone 1.3** - Procurement of systems and materials completed (Month 10)
- **Milestone 1.4** - Obtain permits and approvals for floating solar and interconnection agreement executed (Month 10)
- **Milestone 1.5** - Substantial completion of solar panels completed (Month 18)
- **Milestone 1.6** - Microgrid integration and system commissioning completed (Month 20)

GHG Reduction Measure 2: Installation of Solar Panels on Municipal Buildings – Tasks

- **Task 2.1 –Site Assessment and Energy Needs Analysis:** Conduct final evaluations of each municipal building to confirm the most suitable locations for solar panel installations, assess roof integrity, and analyze energy consumption patterns.
- **Task 2.2 –System Design:** Design the solar PV system tailored to each building's needs, including panel layout, electrical system integration, and any necessary structural modifications.
- **Task 2.3 –Procurement of Materials:** Source and procure all necessary components for the solar installations, including solar panels, racking systems, inverters, and electrical wiring.
- **Task 2.4 –Permitting and Approvals:** Obtain all necessary local government and utility permits and approvals for the installation of solar PV systems.
- **Task 2.5 –Installation:** Install the solar panels, racking systems, inverters, and perform all necessary electrical work to integrate the solar systems with the buildings' existing electrical infrastructure.
- **Task 2.6 –Commissioning and Training:** Perform system testing to ensure everything is functioning correctly, commission the solar PV systems, and provide training to relevant municipal staff on system operation and maintenance.

GHG Reduction Measure 2: Installation of Solar Panels on Municipal Buildings – Milestones

- **Milestone 2.1** - Completion of site assessments and energy needs analysis (Month 3)
- **Milestone 2.2** - Finalization of system design, interconnection submitted (Month 6)
- **Milestone 2.3** - Procurement of materials completed (Month 9)
- **Milestone 2.4** - Permits and approvals obtained; interconnection agreement executed (Month 10)
- **Milestone 2.5** - Substantial completion of solar PV systems (Month 16)
- **Milestone 2.6** - System commissioning and staff training completed (Month 18)

GHG Reduction Measure 3: City-wide Installation of LED Lighting – Tasks

- **Task 3.1 –Site Assessment and Energy Needs Analysis:** Finalize evaluations of each building included in the program to confirm correct application of lighting components, and space lighting requirements. Confirm projected energy use reductions and GHG emission equivalents.
- **Task 3.2 –System Design:** Design the lighting upgrades to each building's needs, accounting for space task requirements and occupant needs.
- **Task 3.3 –Procurement of Materials:** Source and procure all necessary components for installations.

- **Task 3.4 –Permitting and Approvals:** Obtain all necessary local government and utility permits and approvals for the installation of the systems.
- **Task 3.5 –Installation:** Install the lighting systems and perform all necessary electrical work to integrate with the buildings' existing electrical infrastructure.
- **Task 3.6 –Commissioning and Training:** Perform system testing to ensure everything is functioning correctly, commission the systems, and provide training to relevant municipal staff on system operation and maintenance.

GHG Reduction Measure 3: City-wide Installation of LED Lighting – Milestones:

- **Milestone 3.1** - Completion of site assessments and energy needs analysis (Month 2)
- **Milestone 3.2** - Finalization of system design (Month 4)
- **Milestone 3.3** - Procurement of materials completed (Month 6)
- **Milestone 3.4** - All necessary permits and approvals obtained (Month 8)
- **Milestone 3.5** - Installation of lighting components completed (Month 10)
- **Milestone 3.6** - System commissioning and staff training completed (Month 12)

GHG Reduction Measure 4: Implementation of Building Automation Program – Tasks

- **Task 4.1 –Site Assessment and Energy Needs Analysis:** Conduct final design evaluations of each municipal building to be included in the program to determine the most suitable locations for system components.
- **Task 4.2 –System Design:** Design the Building Automation Program to be tailored to each building's needs, including HVAC type and control strategies.
- **Task 4.3 –Procurement of Materials:** Source and procure all necessary components for the.
- **Task 4.4 –Permitting and Approvals:** Obtain all necessary local government and utility permits and approvals.
- **Task 4.5 –Installation:** Install the hardware and software components and perform all necessary electrical work to integrate the systems with the buildings' operations.
- **Task 4.6 –Commissioning and Training:** Perform system testing to ensure everything is functioning correctly, commission the systems, and provide training to relevant municipal staff on system operation and maintenance.

GHG Reduction Measure 4: Implementation of Building Automation Program – Milestones:

- **Milestone 4.** - Completion of site assessments and energy needs analysis (Month 4)
- **Milestone 4.** - Finalization of system design (Month 6)
- **Milestone 4.** - Procurement of materials completed (Month 9)
- **Milestone 4.** - All necessary permits and approvals obtained (Month 9)
- **Milestone 4.** - Installation of BAS systems completed (Month 16)
- **Milestone 4.** - System commissioning and staff training completed (Month 18)

Potential Risks for our Project

Risk 1. Contractor Performance Risks: Risk of our contractors providing subpar installation of solar installations. Risk of contracting partners selecting solar panel or inverter technologies that do not reach

the projected energy production and GHG emission reductions.

Risk 1 Mitigation: Through the 200.CFR compliant OMNIA Purchasing Cooperative, we have chosen to work with a contracting partner that has extensive experience in solar PV and general energy efficiency retrofit program implementation. The contractor would provide contractual performance guarantees and conduct ongoing Measurement & Verification of the program.

Risk 2. Technical and Performance Risks: Risk of underestimating the energy production capacity of solar installations. Risk of selecting solar panel or inverter technologies that do not perform as expected under local environmental conditions.

Risk 2 Mitigation: Conduct detailed feasibility studies and energy audits to accurately estimate energy needs and production capabilities.

Choose equipment from reputable manufacturers with proven performance in similar climatic conditions.

Risk 3. Technical and Performance Risks:

Risk of supply chain interruptions causing a delay in the project.

Risk 3 Mitigation: During final design and sourcing of the materials availability would be one of the factors considered in the selection of material vendors.

Choose equipment during design that has reliable availability for the foreseeable future at the time of specification.

SECTION 1B: DEMONSTRATION OF FUNDING NEED (10 POSSIBLE POINTS)

Despite the critical importance of our initiative, we have encountered substantial challenges in securing sufficient funding to fully implement these measures. Below, we detail our exploration of alternative funding sources and justify the strong need for CPRG funding.

Exploration of Funding From Existing City Budgets:

We have invested in a city-wide Investment Grade Audit (IGA) of our facilities. After thorough research and consultation, we have explored the following funding options:

Low Interest Energy Efficiency Revolving Fund Loan: Through our local “Council of Government” organization, Indian Nation Council of Governments, We have been approved for implementation of a solar PV project at our Police and Fire Training Center. This solar project is valued at approximately \$1,100,000. We are in the process of moving this loan and resultant project through the contract approval process.

Existing Annual Operations & Maintenance Budgets: In fiscal year 24-25 we currently have approximately \$1.6 million budgeted for HVAC upgrades at critical locations. These upgrades would improve operations reliability of existing systems and result in greater efficiency at those locations. Given other necessities in the city, O&M funds are generally dedicated to upgrade and renewal of existing systems as opposed to building new facilities or major upgrades as contemplated by this application.

Exploration of Other Federal Grants

After thorough research and consultation, we have explored the following federal grants:

WaterSMART Grants: These grants appear to be applicable to the water and wastewater measures. However, the 50% match requirement is prohibitive from a budgetary standpoint.

Preventing Outages and Enhancing the Resilience of the Electric Grid Grant (BIL/IIJA) Grid: This

grant is administered by the Oklahoma Department of Commerce and generally seems to be allocated to utility providers.

Environmental and Climate Justice Community Change Grants Program: The Environmental and Climate Justice Community Change Grant program (Community Change Grants), created by the Inflation Reduction Act. We are considering this program for other measures identified during the IGA or are currently under development.

Energy Efficiency and Conservation Block Grant (EECBG) Program: This is a viable option that we would consider for certain measures during the next cycle of applications. To date, we have not applied.

Bipartisan Infrastructure Law: The State of Oklahoma did receive an award through this program. However, it appears that funds were allocated to other projects in the state. Despite these efforts, the funding available through these sources is insufficient due to [reasons, such as limited scope, competitive nature, partial funding, etc.].

Examination of Tax Incentives

In Oklahoma, we have investigated the following tax incentives that are relevant to our GHG reduction measures:

Renewable Technology Direct Treasury Payments: As part of the “Inflation Reduction Act” the city is eligible for reimbursement of various percentages of funds spent to implement renewable energy technologies. We considered these payments, however the structure of the payments would require that the city provide payments to contractors and be reimbursed in the future. This would place the city in an untenable cash reserve position.

Other “tax incentives” do not apply to our projects as we are a tax exempt entity.

State Grants and Funding Opportunities

Our search for state-level funding has included:

Drinking Water State Revolving Funds and the Clean Water State Revolving Funds: We have considered utilizing revolving loan funds for these upgrades. Our intention is to apply for these funds for other projects critical to our water operations. Like the federal grants and tax incentives, these state funding sources are not sufficient to fully support our GHG reduction initiatives while also addressing other improvements that are critical to our operations.

Need for CPRG Funds

In Oklahoma, the cost of energy, to the end user, is lower than the average cost across the United States. Therefore, while we may see a valuable ratio of GHG reductions per dollar spent, the related savings in energy dollars reduction is not sufficient to offset the costs. Longer payback periods to achieve a financial return on investments due to lower energy rates make funding sources, such as CPRG, extremely valuable. In Oklahoma, we generally have lower costs of construction to implement the measures. So, we believe that our ability to achieve a higher GHG reduction per grant dollar spent is a valuable return for the grant program.

Award of CPRG funding for this project would allow the city to perform this project, and provide the basis of expansion of the solar at a later date. In particular, the Water Treatment Plant is in an area of our community that currently is deficient in power supply. So the project, as proposed, helps the current electrical supply challenges in the area. In addition, a review of the site reveals that approximately 10 MW of additional solar PV could be installed at the site in the future. This project would lay the groundwork for additional energy security for the citizens in this area of our community.

SECTION 1C: TRANSFORMATIVE IMPACT (15 POSSIBLE POINTS)

Pioneering, replicable, and scalable policies or programs to increase deployment of existing GHG emission reduction technologies or mitigation approaches:

Currently, the success and potential of our project to inspire broader adoption lies fundamentally in its replicability and scalability, especially given our municipality's inclusion in INCOG, a [Council of Governments](#) encompassing 19 member cities and 8 member counties, in addition to 32 participating cities. This strategic position amplifies our ability to set a compelling precedent for mid-size cities considering renewable energy initiatives. Specifically, our efforts in Broken Arrow can serve as a blueprint for harnessing solar energy in municipal buildings and water treatment facilities. The modularity and adaptability of solar PV installations, combined with energy efficiency measures tailored for scalability, position our project not just as a local success story but as a viable model ripe for adoption across the council. As Broken Arrow demonstrates the tangible benefits of these initiatives—ranging from reduced GHG emissions to financial savings and energy resilience—the project could stand as a beacon, encouraging other mid-size cities within our Council of Governments to embark on similar renewable energy journeys. The successful implementation here, with its promise of significant environmental and economic impacts, is poised to be a key influencer, potentially catalyzing a wave of solar energy adoption among our neighboring municipalities. Below, you would find the ways in which each of our 2 measures are scalable as well as replicable.

Regarding Measure 1 - Renewable Energy at the Wastewater and Water Treatment Plants (REEE-WTP) with Microgrid at the Water Treatment Plant: This comprehensive measure is uniquely scalable due to its multi-faceted approach. Installing solar PV panels on water bodies not only utilizes previously unexploited spaces for energy generation but also can be expanded based on the availability of surface area and energy demands. The integration of microgrid capabilities further enhances this scalability, allowing for the tailored management of energy production and consumption. This adaptability ensures that the REEE-WTP measure can be implemented in a variety of contexts, from small, rural treatment facilities to large, urban plants. The comprehensive nature of REEE-WTP, combining renewable energy production with efficiency and microgrid management, serves as a replicable model for municipalities within the Council, showcasing how to achieve significant energy and cost savings while reducing GHG emissions.

Many other communities in our area have building and plant operations similar to ours. Success of a project such as this would serve as an example of what is possible for our peers in this area. Not only would we become a resource of knowledge for other communities in our area, we would be available for expansion of the solar energy production at our site as our community expands.

To our knowledge, a solar PV installation of this nature has not occurred in the State of Oklahoma. In our state, we have many surface water resources that could be used in this manner. Communities across the state would benefit from the practical application of this technology.

Both the renewable energy implementation on municipal buildings and the REEE-WTP measures are designed with a keen eye on replicability and scalability. By demonstrating how these measures can be adapted and expanded to meet the diverse needs of municipalities within our Council of Governments, we pave the way for a collaborative effort towards substantial GHG reductions. These projects can serve not only as a testament to what we could do within our municipality but also as a beacon, guiding other municipalities towards effective, scalable, and replicable GHG emission reduction strategies.

Regarding Measure 2 – Renewable Energy Implementation on Municipal Buildings: This aspect of our project involves outfitting various municipal buildings with solar PV panels, a measure with remarkable scalability. The scalability is inherent in the nature of solar PV technology, which can be adapted to buildings of any size or function, from small community centers to large administrative complexes. This versatility means that as municipalities assess their building portfolios, they can

prioritize installations based on energy needs, roof or other space, and budgetary considerations. Moreover, the modular nature of solar panels allows for phased expansions to accommodate future energy needs or financial resources, making it an ideal model for other municipalities within our Council of Governments and state seeking to replicate our success.

Regarding Measure 3 -City-wide LED Lighting Upgrades: LED Lighting upgrades continue to provide one of the best returns of GHG reductions per dollar spent on implementation. Several years ago, Broken Arrow adopted T-8 lighting standards and realized a substantial energy savings and GHG reduction from the previous T-12 standard. LED conversion from the current T-8 inventory would lead to a similar GHG reduction. In addition, the life-cycle of the LED technology is substantially longer than T-8's and electronic ballasts. This would also lead to less waste to recycle centers over the next several years.

Regarding Measure 4 - Implementation of a Building Automation Program: This measure addresses the largest energy using facilities in the city inventory. Once this measure is installed, the city staff would be trained on the system. We would be able to expand the system over time to address the remaining facilities in the city. Thereby, multiplying the long term impact of this measure.

GHG emission reductions from hard-to-abate sectors where GHG emission reduction measures are not widely adopted

The Broken Arrow project stands as a critical intervention in a region where the energy sector represents a significant challenge for greenhouse gas (GHG) reduction. Our initiative addresses the disproportionate GHG emissions from local power plants, which substantially exceed national averages. Specifically, the plants servicing our area emit 1,031.6 pounds of CO₂ per MWh of electricity generated, markedly higher than the national average of 852 pounds per MWh. Additionally, these facilities release .953 lbs of SO₂ and .773 lbs of NO_x per MWh, compared to national averages of .531 lbs of SO₂ and .525 lbs of NO_x, respectively.

By adopting renewable energy to supplement the grid, for our six locations, the Broken Arrow project not only targets a hard-to-abate sector but also aims to create transformative impacts. Through the adoption of renewable energy sources and efficiency improvements, we aim to do our required part in minimizing the damage that our region's power production is doing. This approach not only addresses the immediate and necessary environmental impact but sets a precedent for scalable and replicable GHG reduction strategies in other cities, which is ultimately what is needed to inch our region closer to a net zero energy ecosystem. This all further illustrates that the success of this project has the potential to catalyze significant additional GHG emission reductions by demonstrating a viable path forward for energy-sector emissions mitigation in a region that must improve if we are to combat the climate crisis.

Market transformations that accelerate the deployment and market adoption of emerging GHG emission reduction technologies or practices.

The proposed GHG reduction measures within our project, particularly the implementation of renewable energy sources and the integration of microgrid capabilities, leverage widely recognized and tested strategies for reducing greenhouse gas emissions. The transformative potential of our project lies not in the novelty of these technologies but in their strategic application, scalability, and replicability, especially considering the specific energy challenges in our area and our position as a member of a council of governments, as mentioned above. As the 4th largest city in the State of Oklahoma, Broken Arrow is in the position to exhibit leadership on initiatives such as this. Environmental stewardship, practiced through measures that make sense and can be replicated sets an example that success in this arena can be achieved.

SECTION 2: IMPACT OF GHG REDUCTION MEASURES (60 POSSIBLE POINTS)

The measures in this application are proven technology. Solar PV panels have an anticipated

life-cycle of approximately 40 years. The inverters planned for the project have a life-cycle of 15-20 years. The solar production is anticipated to degrade slightly over the life of the equipment but not to a substantial degree. The LED lighting, once installed has a much longer life-cycle per lamp than the fluorescent lights that it is replacing. We don't expect the need for lighting replacements of the new lamps for approximately 15 years. At that point in time LED would be a common standard or a new technology would perform even better than LED. The Building Automation Program would expand over time. This project addresses the largest energy using facilities in the city. As time passes, we would expand the program to control the remainder of the buildings.

For the reasons stated above, we have every reason to believe that the GHG reductions resulting from this project would be permanent. Not only would they be permanent, we believe that this project would be the impetus for a greater effort in the future.

Furthermore, the calculations in this report are focused on CO₂, NO_x, and SO₂ as the primary GHG reductions. Most of the savings projected from the measures are related to electricity savings from the grid. There are some GHG savings related to the measures for reduction in on-site diesel generator run time that have not been included herein. We intend to document those savings during the final design of the systems and evaluation of generator operation hours.

Also, as noted in Section 1C of this paper, we leveraged the EPA GHG Equivalencies Calculator and the EPA Power Profiler. We learned via the latter that **our power sources in the SPSO eGrid Subregion generally emit ~1.21 times the CO₂, ~1.79 times the SO₂, and ~1.47x times the NO_x of the average power sources nationally.**¹

SECTION 2A: MAGNITUDE OF GHG REDUCTIONS FROM 2025 THROUGH 2030 (20 POSSIBLE POINTS)

Reductions from Measure 1 - Renewable Energy at the Wastewater and Water Treatment Plants with Microgrid at the Water Treatment Plant: This measure aligns with the CPRG's eligible project category of "Waste, Water, and Sustainable Materials Management Sector - Installation of renewable energy and energy efficiency measures at water treatment facilities"

- We have identified savings of 6,758,600 kWh for this scope
- Via the GHG Equivalencies Calculator, this means reductions of 4,721 Metric Tons CO₂ annually and 23,605 Metric Tons CO₂ over the 5 years between 2025 to 2030

Reductions from Measure 2 – Renewable Energy Implementation on Municipal Buildings: This measure aligns with the CPRG's eligible project category of "Electric Power Sector: *Installation of renewable energy and energy storage systems on municipal facilities*"

- We have identified savings of 742,900 kWh for this scope
- Via the GHG Equivalencies Calculator, this means reductions of 519 Metric Tons CO₂ annually and 2,595 Metric Tons CO₂ over the 5 years between 2025 to 2030

Reductions from Measure 3 - City-wide LED Lighting Upgrades: This measure aligns with the CPRG's eligible project category of "Buildings Sector: *Implementation of a building energy performance management program for government-owned buildings*"

- We have identified savings of 856,546 kWh and an increased usage of 812 therms of natural gas for this scope
- Via the GHG Equivalencies Calculator, this means reductions of 595.28 Metric Tons CO₂ annually and 2,975 Metric Tons CO₂ over the 5 years between 2025 to 2030

¹<https://www.epa.gov/egrid/power-profiler#/SPSO>

Reductions from Measure 4 - Implementation of a Building Automation Program: This measure aligns with the CPRG's eligible project categories of "Buildings Sector: *Implementation of a building energy performance management program for government-owned buildings*, Buildings Sector: *Implementation of a new benchmarking and building performance standards*"

- We have identified savings of 102,478 kWh and 11,511 in therms of natural gas for this scope
- Via the GHG Equivalencies Calculator, this means reductions of 132.74 Metric Tons CO2 annually and 664 Metric Tons CO2 over the 5 years between 2025 to 2030

TOTAL Reductions from All Measures Combined:

- Overall the combined annual energy savings from the measures are 8,460,542 kWh and 10,699 therms of natural gas. GHG reductions for all measures combined results in reductions of 5,968 Metric Tons CO2 annually and 29,839 Metric Tons CO2 over the 5 years between 2025 to 2030.

SECTION 2B: MAGNITUDE OF GHG REDUCTIONS FROM 2025 THROUGH 2050 (10 POSSIBLE POINTS)

Reductions from Measure 1 - Renewable Energy at the Wastewater and Water Treatment Plants with Microgrid at the Water Treatment Plant: This measure aligns with the CPRG's eligible project category of "Waste, Water, and Sustainable Materials Management Sector - Installation of renewable energy and energy efficiency measures at water treatment facilities"

- We have identified savings of 6,758,600 kWh for this scope
- Via the EPA GHG Reductions Calculator, this equals reductions of 4,721.02 Metric Tons CO2 annually and 118,025 Metric Tons CO2 over the 25 years between 2025 to 2050

Reductions from Measure 2 – Renewable Energy Implementation on Municipal Buildings: This measure aligns with the CPRG's eligible project category of "Electric Power Sector: *Installation of renewable energy and energy storage systems on municipal facilities*"

- We have identified savings of 742,900 kWh for this scope
- Via the EPA GHG Reductions Calculator, this equals reductions of 519 Metric Tons CO2 annually and 12,975 Metric Tons CO2 over the 25 years between 2025 to 2050

Reductions from Measure 3 - City-wide LED Lighting Upgrades: This measure aligns with the CPRG's eligible project category of "Buildings Sector: *Implementation of a building energy performance management program for government-owned buildings*"

- We have identified savings of 856,546 kWh and an increased usage of 812 therms of natural gas for this scope
- Via the EPA GHG Reductions Calculator, this equals reductions of 595.28 Metric Tons CO2 annually and 14,882 Metric Tons CO2 over the 25 years between 2025 to 2050

Reductions from Measure 4 - Implementation of a Building Automation Program: This measure aligns with the CPRG's eligible project categories of Buildings Sector: *Implementation of a building energy performance management program for government-owned buildings*, Buildings Sector: *Implementation of a new benchmarking and building performance standards*

- We have identified savings of 102,478 kWh and 11,511 in therms of natural gas for this scope
- Via the EPA GHG Reductions Calculator, this equals reductions of 132.74 Metric Tons CO2 annually and 3,319 Metric Tons CO2 over the 25 years between 2025 to 2050

TOTAL Reductions from All Measures Combined:

- Overall the combined annual energy savings from the measures are 8,460,542 kWh and 10,699 therms of natural gas. GHG reductions for all measures combined results in reductions of 5,968 Metric Tons CO2 annually and 149,194 Metric Tons CO2 over the 25 years between 2025 to 2050.

SECTION 2C: COST EFFECTIVENESS OF GHG REDUCTIONS (15 POSSIBLE POINTS)

Cost effectiveness from Measure 1 - Renewable Energy at the Wastewater and Water Treatment Plants with Microgrid at the Water Treatment Plant:

- Funding \$19,837,740 / 23,605 Metric Tons CO2 over the 5 years between 2025 to 2030 = \$840 per metric ton CO2 reduced

Cost effectiveness from Measure 2 – Renewable Energy Implementation on Municipal Buildings:

- Funding \$1,804,896 / 2,595 Metric Tons CO2 over the 5 years between 2025 to 2030 = \$695 per metric ton CO2 reduced

Cost effectiveness from Measure 3 - City-wide LED Lighting Upgrades:

- Funding \$1,560,318 / 2,975 Metric Tons CO2 over the 5 years between 2025 to 2030 = \$524 per metric ton CO2 reduced

Cost effectiveness from Measure 4 - Implementation of a Building Automation Program:

- Funding \$686,867 / 664 Metric Tons CO2 over the 5 years between 2025 to 2030 = \$1,035 per metric ton CO2 reduced

Total cost effectiveness from All Measures Combined:

- Funding \$23,899,821 / 30,051 Metric Tons CO2 over the 5 years between 2025 to 2030 = \$795 per metric ton CO2 reduced

SECTION 2D: DOCUMENTATION OF GHG REDUCTION ASSUMPTIONS (15 POSSIBLE POINTS)

Documentation of GHG Reductions: The “Technical Appendix” included as an attachment provides an in depth explanation of methods and assumptions employed to calculate the GHG reductions. We have also attached the following to this application to provide an further detail into how reductions were calculated:

Attachments:

1. Solar PV Helioscopes, that describe the design and assumptions for each of the 6 solar PV sites;
2. Assumptions utilized for calculating the LED conversion kWh savings
3. Assumptions utilized for calculating the Building Automation Program’s kWh savings

SECTION 3: ENVIRONMENTAL RESULTS – OUTPUTS, OUTCOMES, AND PERFORMANCE MEASURES (30 POSSIBLE POINTS)

SECTION 3A: EXPECTED OUTPUTS AND OUTCOMES (10 POSSIBLE POINTS)

Outputs

- Solar PV installations at six sites within the City of Broken Arrow;
- Energy efficient LED lighting at approximately 40 locations
- Building management program would be implemented in the largest energy using facilities;

- Implementation of energy use portfolio tracking through capabilities of the Building Automation Program;
- Contractors hired to implement GHG reduction measures.
- Broken Arrow routinely engages with our citizens on community initiatives. Our contractor (identified through the CFR.200 compliant OMNIA mechanism), Schneider Electric, also employs a robust Marketing/Outreach component. Together we would use this outreach to promote community engagement. We intend to reach out to local school districts to promote the benefits of renewable technology in science classrooms.

Outcomes:

- Overall the combined annual energy savings from the measures are 8,460,542 kWh and 10,699 therms of natural gas; GHG reductions for all measures combined results in reductions of 5,968 Metric Tons CO2 annually and 29,839 Metric Tons CO2 over the 5 years between 2025 to 2030.
- Overall the combined annual energy savings from the measures are 8,460,542 kWh and 10,699 therms of natural gas; GHG reductions for all measures combined results in reductions of 5,968 Metric Tons CO2 annually and 149,194 Metric Tons CO2 over the 25 years between 2025 to 2050.
- Improved energy resilience through energy diversification at each location receiving solar PV
- Reduced diesel emissions in the area immediately around the water treatment plant due to reduced run time of diesel generators that have historically ran during summer peak periods;
- Underrepresented and at risk communities are at a disproportionate risk during times of community distress. If there is a time when a crisis in our power grid puts our water supply at risk, our disadvantaged community is less able to afford bottled water or other temporary water sources. We have chosen to include “Micro grid” capabilities with the solar PV at the water treatment plant to increase the resilience and water security for all of our community.
- Via the EPA’s COBRA Tool, we identified up to \$6,792,350 dollars saved from 2025 to 2050, based on health issues avoided. Specifics are provided in Section 4 under “Benefit 2”.²
- Via the EPA’s COBRA Tool, we identified reductions on respiratory issues, hospital admittances, and even mortalities. Specifics are provided in Section 4 under “Benefit 2”.³
- Fluorescent lighting has long been known to cause visual distress and headaches in a sector of the population. Replacement of the fluorescent lighting with LED lighting would reduce the visual distress and resultant problems that follow as a result;
- Number of high-quality jobs created throughout our jurisdiction and in low-income and disadvantaged communities. This is addressed more in Section 4;
- Increased resilience to climate change impacts as measured by the number of buildings or Census tracts that meet certain resiliency standards;
- Hazardous Air Pollutant (HAP) Reductions; Reductions in annual HAP emissions would be documented during the tracking and verification period for the measures.
 - The local utilities electrical grid is capacity constrained in the area where the Water Treatment Plant is located. Currently during the summer peak electrical usage, the local utility pays the city to run on-site diesel generators at the Water Treatment plant to prevent “brown out” conditions on the grid in that part of the community. Installation of the solar PV with Micro Grid capability would reduce the need to run the diesel generators under these conditions. That would result in a reduction of HAP due to reduced diesel generator run times. The reduction of these HAP’s would be tracked during the project verification period.

² <https://cobra.epa.gov/>

³ <https://cobra.epa.gov/>

- Coal accounts for 35% of the power produced for BA's region. There are 3 major coal fired power plants within 40 miles of Broken Arrow. By relying less on this power source, this project would reduce HAPs and set an example for other municipalities in the region.

SECTION 3C: PERFORMANCE MEASURES AND PLAN:

Schneider Electric (identified through the CFR.200-compliant OMNIA Purchasing Cooperative), was chosen in part due to the fact that they maintain a department whose sole responsibility is the Measurement and Verification (M&V) of energy use reductions throughout the performance period. The M&V approach adheres to the International Performance Measurement and Verification Protocol (IPMVP) to ensure savings calculations and verification would be repeatable and confirmable. The Schneider Electric team has helped clients achieve their energy savings goals on over 1000 projects over the past 30 years resulting in the reduction in energy usage by over 2 billion dollars.

Our City team would work with the Schneider Electric team to develop an appropriate M&V plan for the measures installed under the grant. The initial cost of establishing this verification function is included in the project and is explained under "Contractual" in the Budget Narrative. On-going annual costs would be paid for from City of Broken Arrow budgets and are not part of this grant. The following services would be provided throughout the Performance Period:

- On-going site visits to verify proper operation of installed ECMs
- Remote energy management training
- Remote system monitoring & reporting
- On-site training
- System optimization
- M&V with GHG reductions reporting

Below you can find what we plan to track if we are able to execute this project:

Table 1: Tracking of Outputs/Outcomes

Anticipated Output	Anticipated Outcome	Output/Outcome Tracking
Renewables on Wastewater plant and on Water Treatment plant with Microgrid	4,721.02 Metric Tons CO2 annually in GHG Reductions	<p><i>Track installation of scope against milestones.</i></p> <p><i>Track GHG emissions by tracking energy savings in KWhs and using EPA GHG equivalencies calculator on a monthly basis</i></p> <p><i>During the project verification period, track HAPs by using Michigan or Minnesota HAP equivalencies calculator</i></p> <p><i>Track health benefits via inputting verified GHGs into EPA COBRA Tool</i></p>

Anticipated Output	Anticipated Outcome	Output/Outcome Tracking
Renewables on municipal buildings	519 Metric Tons CO2 annually in GHG reductions	<p><i>Track installation of scope against milestones.</i></p> <p><i>Track GHG emissions by tracking energy savings in KWhs and using EPA GHG equivalencies calculator on a monthly basis</i></p> <p><i>During the project verification period, track HAPs by using Michigian or Minnesota HAP equivalencies calculator</i></p> <p><i>Track health benefits via inputting verified GHGs into EPA COBRA Tool</i></p>
Building Automation Program	132.74 Metric Tons CO2 annually in GHG Reductions	<p><i>Track installation of scope against milestones.</i></p> <p><i>Track GHG emissions by tracking energy savings in KWhs and using EPA GHG equivalencies calculator on a monthly basis</i></p> <p><i>During the project verification period, track HAPs by using Michigian or Minnesota HAP equivalencies calculator</i></p> <p><i>Track health benefits via inputting verified GHGs into EPA COBRA Tool</i></p>
Community Engagement Campaign - Hold events to promote the benefits of the project to the youth through school based program about renewables	Education for our city's students can not only create buy-in for the younger generation, but also increase awareness of and interest in the STEAM field, which is important within disadvantaged Communities and especially for the populations of color in our city, as they are underrepresented in the hard Sciences.	<p><i>We can track the number of events held for students.</i></p>

NARRATIVE SECTION 3C. AUTHORITIES AND RESPONSIBILITIES

Roles and responsibilities

Grants Management: Cynthia (Cindy) S. Arnold, Director of Finance for Broken Arrow Tom Cook Jr., Controller for Broken Arrow Ryan Baze, Director of Maintenance Services would work together to ensure the project progress and the reporting requirements were met on behalf of Broken Arrow. Their info is expanded in the corresponding attachment labeled "AllTeamMembers_bio_CityOfBrokenArrow"

Operations and Maintenance: The maintenance and operation of the new system would be handled by Broken Arrow's Building Maintenance Team, which is comprised of 11 professionals with a collective 170 years of experience and 96 years with Broken Arrow. Their individual information is in Section 6C.

Contractor(s): We are keen to foster a fair and competitive environment for the contractor selection process for our initiatives, and we are equally committed to ensuring that our search is steered by quality assurance of potential services, and therefore conducive to achieving the ambitious goals we have set for our GHG reduction measures. Our approach to contractor engagement and management reflects a deep awareness of the importance of conducting a thorough and equitable selection process, that maximizes project quality and environmental outcomes while adhering to the necessary protocols. In the execution of our GHG reduction measures, our approach to selecting and collaborating with contractors is underpinned by a steadfast commitment to securing the highest standards of project delivery. We recognize the critical importance of the roles and responsibilities entrusted to contractors whose expertise and execution capabilities are essential for the successful implementation of our initiatives. To this end, we are leveraging the CFR.200 compliant OMNIA Cooperative Purchasing mechanism, through which we have identified Schneider Electric as a contractor.

Authority

The Broken Arrow Municipal Authority has the authority to do this project and approve contractors to do any part of the project.

Timelines and Milestones:

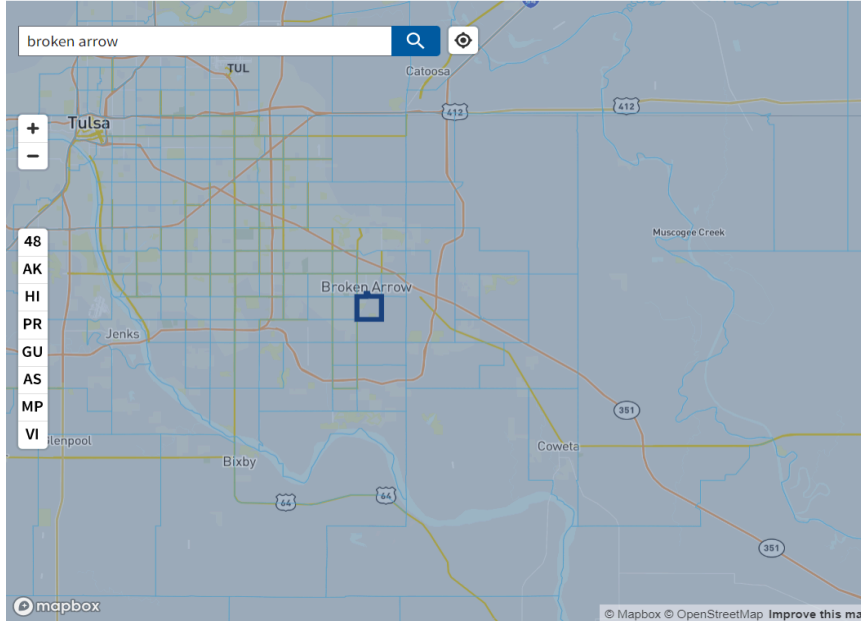
Timelines and milestones are stated in Section 1 of this narrative beginning on Page 2. In the spirit of saving space and for ease of reading we are not duplicating here. Something to note is that the timelines for the different measures are to be executed concurrently, thus allowing for an efficient project completion. We would expect 2-3 years as our general period of performance, which is well within the allotted 12 months from the EPA.

SECTION 4: LOW-INCOME AND DISADVANTAGED COMMUNITIES (35 POSSIBLE POINTS)

SECTION 4A: COMMUNITY BENEFITS

Identifying Impacted Disadvantaged Areas

Figure 1: Image of Broken Arrow from CEJST Mapping Tool; blue means disadvantaged.



Our project would be carried out in Broken Arrow, and thus we identified all of the census tracts within the CEJST Tool that are in the city. As reflected via the list in Table 2 and Figure 1 **every single one of the 35 census tracts in our project area is considered a Disadvantaged Community based on the CPRG program criteria.** We've also included in Table 2 the key metrics that generally lend themselves to the Disadvantaged status of our census tracts. They are:

- a. Percentage of tract that is disadvantaged by area – **100% in Broken Arrow** compared to the **state average of 75.95%**
- b. Percent of the Census tract that is within Tribal area - **99.83% in Broken Arrow compared to the state average of 93.81%**
- c. PM2.5 in the air (percentile) - **Broken Arrow averages in the 90.91 percentile** compared to the **state average of 74.49)**
- d. Expected population loss rate (Natural Hazards Risk Index) - **Broken Arrow Averages in the 90.94 percentile, while the state average is 84.58**
- e. Share of properties at risk of fire in 30 years (percentile) - **Broken Arrow Averages in the 81.09 percentile, compared to the state average of 72.80**
 - i. it's also important to note that 21 of the 35 census tracts are 90th percentile or higher for this metric

Table 2: Averages of key metrics for Broken Arrow Census Tracts. Please note that, in the CEJST Tool all "percentile" numbers are based on a national scale.

	% of tract disadvantaged by area	% of tract within Tribal areas	PM2.5 (percentile)	Expected population loss rate (Natural Hazards Risk Index) (percentile)	Properties at risk of fire in 30 years (percentile)
Broken Arrow Averages	100	99.83	90.91	90.94	81.09
State of Oklahoma Averages	75.95	93.81	74.49	84.58	72.80

Project Benefits to Broken Arrow's Census Tracts

Benefit 1: Increased Resilience to Climate Change

Energy Efficiency: The DOE has a lot of helpful information available regarding the link between energy efficiency measures and climate resilience. One main point to consider is that minimizing energy consumption plays a critical role in combating climate change, as conventional power stations emit greenhouse gasses and contribute to air pollution by burning fossil fuels. Moreover, making buildings more energy-efficient reduces the overall electricity demand on the grid, alleviating both congestion and pressure on the U.S. power network. This reduction in demand helps in preventing interruptions in power supply, which would only increase with time as climate change worsens. This would be particularly beneficial for our community, where multiple brownouts happen at our water treatment facilities every year. Furthermore, buildings designed for energy efficiency are more readily adaptable to renewable energy sources, which do not emit pollutants.

Renewable Energy + Microgrid Capability: An article from the [National Renewable Energy Laboratory](#) highlights the myriad ways in which renewables and micro-grid technology can increase climate resilience in multiple ways. Renewable technologies like the solar photovoltaics we'll install on our buildings enable greater spatial diversification of energy supplies. This would reduce vulnerability to disruptions from single events or locations, enhancing overall resilience.⁴

Microgrids, which can operate independently from the central grid during major climate events, provide flexibility in energy distribution. They allow for the redirection of energy to critical loads during emergencies, ensuring that essential services maintain power and aid in quicker recovery post-disaster. There's also the matter of redundancy, which, when incorporated into energy systems—through multiple energy sources, routes, and storage solutions—increases the resilience of communities. This is vital for minimizing the impact of climate-related and other threats on infrastructure systems. The NREL emphasizes that resilience planning, including the adoption of renewable energy, requires a holistic, all-hazards approach. With our project, we are trying to embody this, and future proof ourselves as a community.

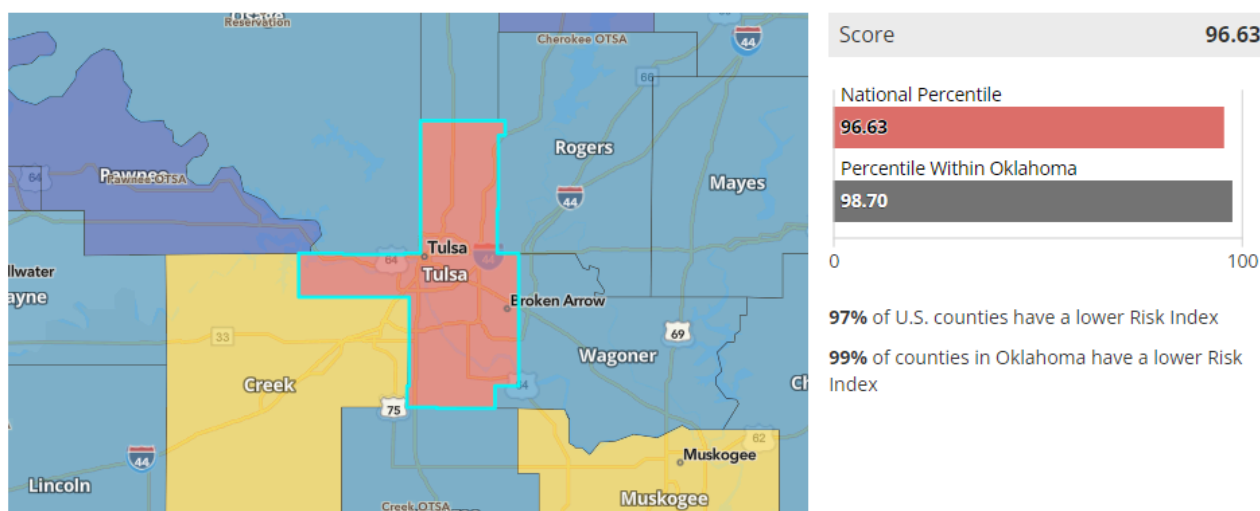
⁴ <https://www.nrel.gov/docs/fy18osti/71310.pdf>

All of this is extremely important in an area that, according to the FEMA National Risk Index (which gauges vulnerability to climate change from a weather-based standpoint) is in the 96th percentile which means we are more at risk than 96 percent of the country. In Oklahoma, we are in the 99th Percentile for risk. Please note that 27 of our 35 census tracts are in Tulsa county, which is why we use Tulsa county data:

Figure 2: FEMA National Risk Index for Tulsa County

Risk Index

The Risk Index rating is **Relatively High** for **Tulsa County, OK** when compared to the rest of the U.S.



Benefit 2: Health Benefits and Related Economic Benefits from Reductions in Relevant Co-Pollutants

Health benefits for this project would extend beyond the bounds of the City of Broken Arrow and have a positive effect on the region. The State of Oklahoma PCAP discusses health benefits in our state beginning on page 35 of the PCAP document. This is especially true of GHG reduction projects in Broken Arrow as we are served by 3 power plants within 40 miles of our city limits that are powered by fossil fuels.

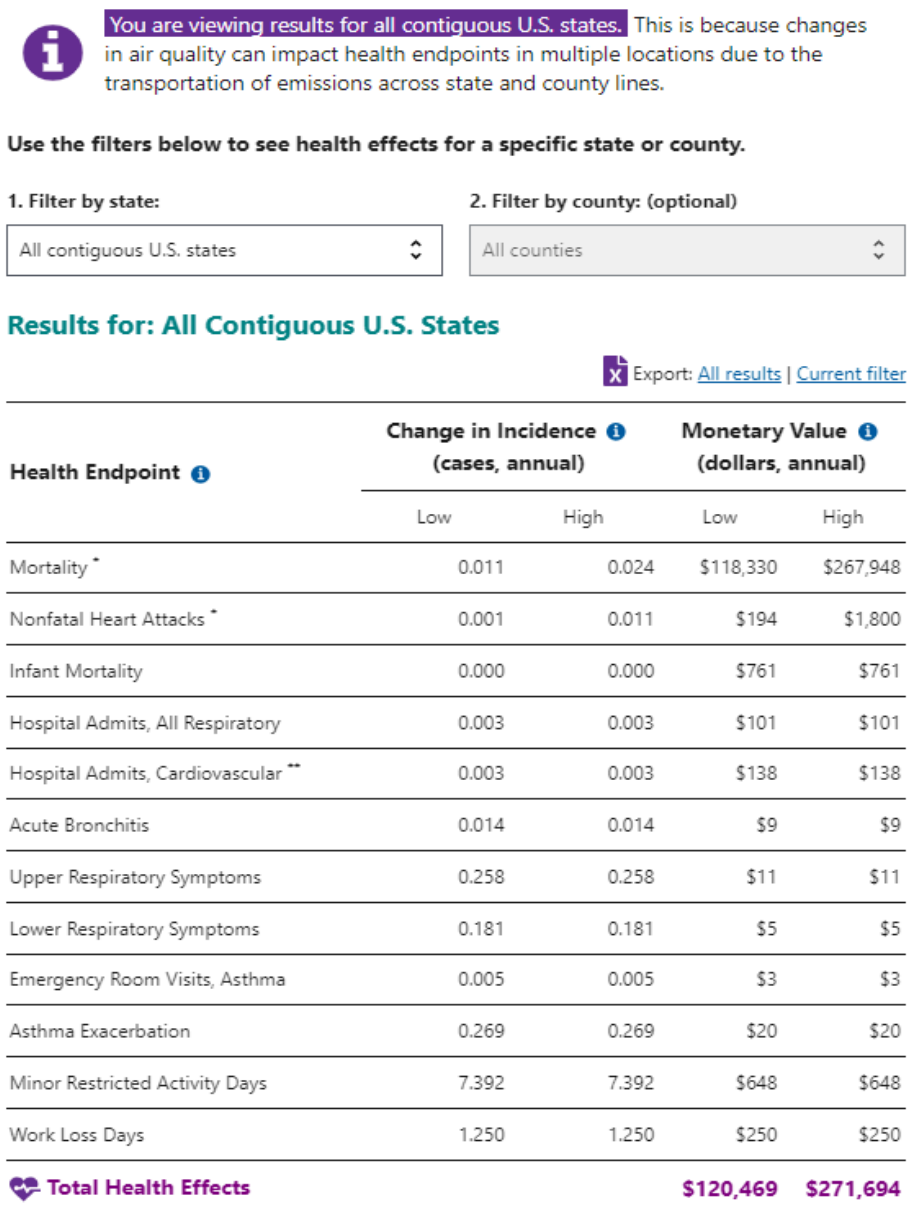
The EPA power profiler, which provides emissions reductions numbers based on the sources of power for particular regions, is a powerful tool for understanding our project's impact on PM2.5 reductions. By inputting our annual savings in KWh into the tool, we were able to figure out how much our project would reduce SO2, and NOx, the two most relevant PM2.5 related types for a project that focuses mainly on electricity savings. The EPA Power Profiler shows that our estimated annual avoidance of 8,460,542 kWh used would result in reductions of 8442.8 pounds of SO2, and 6848.2 pounds of NOx emitted in one year from the power plants in our area specifically. The EPA Power Profiler also showed us that for every 1 lb/MWh of SO2 that's emitted nationally, our area would emit 1.79 times that to produce the same amount of electricity. Furthermore, for every 1 lb/MWh of NOx emitted, our area would emit 1.4 times the amount to produce the same amount of electricity.⁵ Altogether, this means this project would literally be pound for pound more effective, and thus, more pertinent than it would be in most other places.

⁵ <https://www.epa.gov/egrid/power-profiler#/SPSO>

Once we identified our annual reductions in NOx and SO2, we were able to use the EPA's COBRA tool to figure out what the annual health benefits would be, as well as the corresponding economic implications for those health benefits. Given that the NOx and SO2 numbers we got from the EPA Power Profiler were based on emissions from electricity production from all sources used in our region, we selected Oklahoma as our Location, "Fuel Combustion: Electric Utility" as our "Sector" and kept "All Sub-sectors" selected as well. The Subsectors were Coal, Gas, Internal Combustion, Oil, and Other.

Under the described conditions, our COBRA scenario yielded the projected health benefits, based on annual reductions of 8442.8 pounds of SO2 (4.23 tons), and 6848.2 pounds of NOx (3.42 tons). It is very important to note that results are for the whole country in terms of impact, because changes in air quality can affect health in multiple locations as emissions get transported by things like wind. The below information is based on if the above mentioned annual reductions in SO2 and NOx happened based on changes in Oklahoma, but then had an impact all over. That is how the EPAs COBRA Tool calculates impact.

Figure 2: Annual Health Benefits ⁶



Benefit 3: Job Creation

Creation of high-quality jobs and new workforce training opportunities in low- income and disadvantaged communities with an emphasis on expanding opportunities for individuals that face barriers to employment; Schneider Electric, who we've identified as a contractor through OMNIA Cooperative Purchasing, has a long track record of involving local subcontractors and subcontractors from underrepresented communities. Schneider Electric has completed projects for clients including the Department of Defense, City of Houston, Metropolitan Atlanta Rapid Transit Authority (MARTA) among others where the "Good Faith Effort" participation goals for underutilized communities were at percentages between 25%-30% of the contract amount. In each case, they have met or exceeded the participation goals. The City of Broken Arrow and Schneider Electric each commit to an inclusive and fair process of awarding contracts. Specific examples of participation can be provided on demand.

Furthermore, we learned that Schneider Electric contracted with Dr. Scott Greene, Ph.D., Professor and Chair, Department of Geography and Environmental Sustainability at the University of Oklahoma to conduct a "Study of Economic Impact of Green Energy Infrastructure Projects" in the State of Oklahoma. The study found that almost 17 new jobs per million dollars spent would be created. This includes direct (11.9), indirect (1.2), and induced (3.8) jobs (all values expressed in numbers per million dollars spent). The "direct" jobs created would be skilled labor positions such as electricians, project managers, solar technicians, etc. The positions necessary for this project, coupled with other projects in the region, would continue to bolster the skill set of the local labor force.

In our own research we've seen that our solar scopes can create 1.5 times as many jobs as investing the same amount of money in fossil fuels. We also learned that Building efficiency retrofits create 2.8 times as many jobs as fossil fuels per \$1 million spent. This is based on the World Resources Institute's paper entitled, "The Green Jobs Advantage: How Climate Friendly Investments Are Better Job Creators".

Benefit 4: Increased Access to Resources

There would be improved energy security for clean drinking water, in that our water treatment and wastewater treatment plants would see significantly less brownouts due to lack of sufficient power, which is a big challenge for us as of now. Also, our floating solar array would, in part, protect against evaporation of our drinking water source, leading to water conservation benefits.

Benefit 5: Decrease Energy Costs

The very nature of this project would decrease energy costs for our area. One of the main drivers of energy cost is when utilities struggle to manage the electric load on an area's grid. With the pressure we would take off of our area's grid between the energy efficiency and renewables/microgrid scope, this would put our utility in a better position to manage peak demand, and thus we would be doing our part to limit the high-load conditions that contribute to higher energy costs

Negative Impacts of our Project

We have not identified any negative impacts of our projects Especially given that we would not need to break ground, this project would not present negative environmental impacts in our community. Furthermore, there would be no displacement of any community residents due to our project. In terms of workforce displacement, we are leveraging the CFR.200 compliant OMNIA contract vehicle to pick a partner that's well versed in working with local subcontractors, as well as in training local staff for operation and maintenance of project equipment.

SECTION 4B - COMMUNITY ENGAGEMENT (10 POSSIBLE POINTS)

The Broken Arrow City Council and city staff are continually focused on informing and involving citizens of our community. Developing an outreach and engagement strategy is essential for fostering community involvement and ensuring that diverse voices are heard. We intend to employ the following strategies to engage with our community around our project:

Engaging with Community Leaders to Ensure Cohesion

We know the importance of making sure there is coordination and cohesion in executing a project. Our application has letters of support from our Mayor, Debra Wimpee, as well as Oklahoma State Representative Ross Ford, and State Senator John Haste. These “Letters of Support” are attached via the “Other Attachments” section of the submittal website.

Providing a publicly accessible list of all upcoming community engagement opportunities

Our events for STEM/STEAM learning centered around the clean energy, energy efficiency, and micro-grid aspects of our project would be widely publicized. We would leverage email and physical advertisement strategies, as well as coordinate with local education agency leaders to ensure maximum participation.

Holding community consultations or public input meetings:

Holding community consultations or public input meetings is a pivotal component of inclusive decision-making processes. These gatherings serve as platforms where individuals and groups can voice their opinions, share their concerns, and contribute their ideas on various projects or policies. Schneider Electric (identified as a viable option through the CFR.200 compliant OMNIA) has a long track record of engaging communities and getting them excited about sustainable projects. We are confident that as our contractor they would help us actively listen to the community's feedback, build trust with our partner organizations, ensure that diverse perspectives are considered, and we work towards solutions that reflect the collective interest of the community.

SECTION 5: JOB QUALITY (5 POSSIBLE POINTS)

In our commitment to the integrity and success of the project, the City of Broken Arrow assures the grant agency that we would fully adhere to the Davis-Bacon Act requirements, ensuring that all laborers employed on the project would be paid no less than the prevailing wages established for the locality. We recognize the significance of fostering a fair workplace, and Davis-Bacon would serve as the cornerstone of this effort. Furthermore, the City is dedicated to maintaining neutrality regarding any labor organizing activities, neither promoting nor suppressing them, as we believe in the right of workers to make their own choices in these matters. Additionally, we pledge to rigorously enforce Occupational Safety and Health Administration (OSHA) safety protocols, guaranteeing a safe working environment for all employees involved in the project. Our commitment to these principles is unwavering, as we aim to ensure that the project not only meets but exceeds standards of fairness, safety, and quality.

SECTION 6: PROGRAMMATIC CAPABILITY AND PAST PERFORMANCE (30 POSSIBLE POINTS)

SECTION 6A: PAST PERFORMANCE (10 POSSIBLE POINTS)

Congestion Mitigation and Air Quality (CMAQ) Improvement Grant / Micro Transit Program

- Project title: Community Development Block Grant
- Assistance agreement number: B-19-UC-40-001, B-20-UC-40-001, B-21-UC-40-001
- Federal funding agency and assistance listing number: 14.218

- Utilizing a CMAQ grant, The City of Broken Arrow redesigned from using traditional bus routes to an eco-friendly fleet comprising four Mustang Mach-E's and one all electric Paratransit van. These vehicles and new charging stations represent the commitment of Broken Arrow to sustainability and accessibility, ensuring a greener, more inclusive future for Broken Arrow.
- Contact: U.S. Department of Housing and Urban Development

Edward Byrne Memorial Justice Assurance Grant / Crime Victim Assistance-2021

- Project title: Law Enforcement through Overtime, Training and Equipment
- Assistance agreement number 15PBJA-GG-01746-JAGX
- Federal funding agency and assistance listing number: 16.738
- The grant is used by the Broken Arrow Police Department to purchase new equipment for officers.
- U.S. Department of Justice Office of Justice Programs

Edward Byrne Memorial Justice Assurance Grant / Crime Victim Assistance-2022

- Project title: Law Enforcement through Overtime, Training and Equipment
- Assistance agreement number 15PBJA-22-GG-02825-JAGX
- Federal funding agency and assistance listing number: 16.738
- The grant is used by the Broken Arrow Police Department to purchase new equipment for officers.
- Contact: U.S. Department of Justice Office of Justice Programs

SECTION 6B. REPORTING (10 POSSIBLE POINTS)

Congestion Mitigation and Air Quality (CMAQ) Improvement Grant / Micro Transit Program:

- This grant is still underway and so far we have been able to meet all reporting requirements
- We are staying on track with our performance measurement of outcomes for this grant.

Edward Byrne Memorial Justice Assurance Grant / Crime Victim Assistance-2021

- All of our reports have been submitted on time and we have closed out this grant successfully with the help of our council of governments, INCOG
- As mentioned above, all grants activities were tracked and reported in a timely manner and expected progress in terms of outcomes were fulfilled.

Edward Byrne Memorial Justice Assurance Grant / Crime Victim Assistance-2022

- Once again we were able to successfully meet our requirements for this grant and closed it out for a second year in a row.
- Same as in 2021, all grants activities were tracked and reported in a timely manner and expected progress in terms of outcomes were fulfilled.

6C. STAFF EXPERTISE (10 POSSIBLE POINTS)

PLEASE BE SURE TO LOOK AT OUR ATTACHMENT LABELED, “AllTeamMembers_bio_CityOfBrokenArrow” FOR BIOSKETCHES OF ALL TEAM MEMBERS.

Grant Management - Financial

Cynthia (Cindy) S. Arnold, Director of Finance for Broken Arrow

Will oversee financial reporting

Tom Cook Jr., Controller for Broken Arrow

Will help with financial reporting

Grant Management - Admin and Reporting

Ryan Baze, Director of Maintenance Services

Will oversee installations at all locations as the main technical point of contact for Broken Arrow. Will connect and collaborate with contractors, and report on technical progress.

Installation/Execution of proposed GHG Reduction Measures

Team members from Schneider Electric:

Roger Flud, CEM, CDSM, BEP, - Program Manager and Team Lead

Would act as the primary point of contact for all legal, financial and operational negotiations with customer representatives.

Dan Moffit, LEED AP, PMP, CEM - Project Development Manager

Would work closely with customer stakeholders to define project objectives and develop scope that aligns with the customer’s vision and mission.

Ryan Stout, National Solar Developer

Is Proficient in the development, design, and implementation of this project. He would collaborate with the city’s technical team to determine our facility and project needs for solar solutions.

Joe Laws, CEM, NEBB - Commissioning Agent

Proficient at overseeing commissioning, equipment startup, and punch listing during project construction.

Darrell Demoss, Director of Operations

Leads the Operations team for the Midwest region, compassing 9 states. He is responsible for staffing individual projects with the appropriate development personnel and ensuring quality of projects

Post-Installation Maintenance and Operation

Ryan Baze, Director of Maintenance Services (mentioned already in this section)

Timothy S. Robbins, PE, Director of Utilities for Broken Arrow

Tim is in charge of the oversight and overall direction of the one of the state of Oklahoma’s largest utility service areas that includes over 41,000 water meters serving over 105,000 citizens on its water utility.

Roger Edwards, Manager of Building Maintenance for Broken Arrow

A seasoned 38 year expert in building maintenance with a deep understanding of facility operations, preventive maintenance, and safety protocols.

Jeff Ocker, Building Maintenance Supervisor for Broken Arrow

Expertise: With 36 years of experience in large-scale commercial building maintenance, he possesses a wealth of knowledge and expertise in various aspects of the field.

Lou-Ann Fisher, Water Treatment Plant Manager for Broken Arrow

Lou-Ann Fisher is the Water Treatment Plant Manager with over 30 years of experience in the field, currently managing the city's water treatment operations for 3 years.

David Handy, Wastewater Plant Manager for Broken Arrow

Overall, David has 10 years of experience as Broken Arrow's Wastewater Plant Manager, years following a 5-year tenure as the City Guymon's Water Treatment Plant Superintendent.

Post-Installation Maintenance and Operation of proposed GHG Reduction Measures

OMNIA procured ESCO, which has a team of M&V professionals led by the individual named as follows:

GHG Reduction - Measurement & Verification

Ryan Born, Client Services Team Leader

He leads the team of representatives that provides guarantee and M&V services throughout the Midwest Region.