

1.0 OVERALL SUMMARY AND APPROACH

1.1 Description of GHG Reduction Measures

A partnership between wastewater treatment facilities and landfills has been developed to capture flared methane and convert it to renewable natural gas to reduce GHG emissions for the Chicago Metropolitan Statistical Area (MSA) and support the recommendations in the Chicago Priority Climate Action Plan (PCAP). The Chicago MSA includes parts of Illinois, Indiana, and Wisconsin. With over 9.6 million people, it is the third largest MSA eligible to receive a Climate Pollution Reduction Grant (CPRG). The recently completed Chicago MSA Priority Climate Action Plan identifies approximately 160,000 metric tons of carbon dioxide equivalent (MtCO₂e) of greenhouse gases (GHG) coming from wastewater treatment facilities and 1,120,000 MtCO₂e coming from solid waste treatment. The climate impacts from increased GHGs are resulting in decreased air quality, greater urban heat island effects, higher likelihood of drought, and increased water scarcity. To address the wastewater treatment facility and municipal solid waste landfill emissions sectors, a multi-jurisdictional coalition, led by the Fox Metro Water Reclamation District (Fox Metro), has been formed with the authority to **implement a shovel ready project to capture and treat digester gas and methane landfill gas (biogas) for conversion to renewable natural gas (RNG)** in an effort to displace fossil-derived natural gas use and improve resource circularity.

This project will build a system of regional biogas cleaning and receiving facilities with four interconnections between the RNG facilities and existing gas company, Nicor Gas Company (Nicor) distribution facilities.¹ Nicor, the utility that owns the local natural gas pipeline, is responsible for setting the criteria for gas quality requirements for any interconnections into its pipeline and is a critical partner. The Chicagoland Renewable Natural Gas Coalition (Coalition) is comprised of eight wastewater treatment plants, the Forest Preserve District of DuPage County (owner of two municipal solid waste landfills), and the Metropolitan Mayor's Caucus.

Each Coalition member is an eligible participant, and there is room in the future to bring on other diverse suppliers of biogas who could utilize the proposed injection sites. Once operational, the project will be financially self-sustaining, replicable, and scalable. This project will capture and reuse all of the renewable methane currently produced by the Coalition wastewater treatment facilities and landfills, thereby eliminating leakage and flaring of 99.5% of methane emissions.

This Coalition understands the economic, environmental, and social value of revising operations and internal strategies to maximize operational efficiency and be stewards of tax dollars. Each entity has worked to innovate and implement strategies that tackle the climate crisis and reduce emissions. Strategies already in place range from the installation of energy efficient process controls, native prairie plantings, recycling of non-potable water for process needs and irrigation, solar energy production, and land application of wastewater biosolids for agricultural fertilization.

Table 1.1. List of Coalition members

Coalition Members	Roles & Responsibilities
Fox Metro Water Reclamation District	Lead Applicant
Wheaton Sanitary District	Project Partner
DuPage County: Wastewater Division	Project Partner
Fox River Water Reclamation District	Project Partner
Kishwaukee Water Reclamation District	Project Partner
Glenbard Wastewater Authority	Project Partner
Kenosha Water Utility	Project Partner
Village of Addison Wastewater Plant	Project Partner
Forest Preserve District of DuPage County (Mallard Lake and Greene Valley landfills)	Project Partner
Metropolitan Mayor's Caucus	Engagement Lead

¹ Nicor is the gas company partner for all but one of the Coalition members, Kenosha Water Utility. If Kenosha Water Utility is selected as an injection site, additional contracts will be negotiated with We Energies as the gas partner in Wisconsin.

Wastewater treatment facilities and landfills, like those represented in this coalition, serve as ‘anchor’ institutions. These public utilities provide critical infrastructure services for over a million people, and the services cannot be relocated. Anchor utilities are in an unparalleled position to invest in operations and the surrounding communities for the long-term which allows them to move beyond day-to-day operations and understand how generational investments can impact public health, job creation, emissions reductions, and stronger partnerships.

As providers of critical infrastructure, the Coalition members have agreed to partner on the Chicagoland Methane Recapture Project: Reducing GHG Emissions and Producing Renewable Natural Gas from Waste Project (Project).

The Project includes the following components:

- ▶ The lead applicant will submit an MOA (Memorandum of Agreement) signed by all Coalition members by July 1, 2024.
- ▶ Complete engineering and design of interconnection infrastructure.
- ▶ Upgrade landfill gas to remove moisture, particulate matter, H₂S and other reduced sulfur compounds, volatile organic compounds, siloxanes, and carbon dioxide. In addition, the gas treatment train will include a system to remove oxygen and nitrogen, which is required at all landfill installations. At least two stages of gas compression will be provided, with possibly a third stage depending on the utility natural gas pipeline operating pressure. The Mallard Lake landfill gas collection system is planned to be upgraded under this grant to collect approximately 20% more biogas than currently projected. The process to upgrade wastewater treatment facility biogas includes hydrogen sulfide removal, moisture removal, siloxane removal, and CO₂ removal, as well as gas compression to the pipeline pressures. Coalition members have already invested substantial time and resources working with Nicor to determine the upgraded gas quality and equipment design requirements to meet the utility standards.
- ▶ Implement point of receipt to monitor the quality of RNG and prevent non-compliant gas from entering the pipeline.
- ▶ Create pipeline extension to allow space for odorization, gas quality monitoring, and a shut off valve.
- ▶ Four receiving stations will be installed. The first will be at Fox Metro with the three remaining receiving stations strategically located at other coalition members facilities. These facilities will accept gas from current coalition members and, in the future, from non-coalition members who want to leverage this transformational project to further reduce GHG emissions. Future users are anticipated to be facilities that produce biogas from wastewater, landfills, agricultural, trucked hauled waste, and food waste.
- ▶ Design new gas receiving facilities.
- ▶ Modify digester gas piping and related facilities for integration.
- ▶ Work with the Metropolitan Mayors Caucus to facilitate broader stakeholder input and advance climate conversation.
- ▶ Monitor progress.

The anticipated timeline and milestones for the Project include:

- Fall 2024** Funding received, construction and implementation planning process begin
- 2025** Coordination between facilities and continued construction of biogas treatment facilities
- Mid-2026** Fox Metro biogas capture and pipeline injection fully operational
- Spring 2027** All participating facilities implementing biogas capture and shipment to receiving facilities

This project will reduce GHG emissions, reduce and replace fossil natural gas use, reduce future sewer use rates, create additional workforce skills, improve air quality in low-income and disadvantaged communities, reduce energy expenses, reduce impact on the energy supply system by reducing pollution, foster energy independence, and help shift the Chicago MSA grid to more sustainable energy sources. Additionally, the Project will eliminate flaring of 99.5% of methane emissions and will provide the option for future compressed natural gas vehicle fleet fueling as well as future CO² capture. Agencies required for implementation include the wastewater treatment facilities, the Forest Preserve District of DuPage County (Mallard Lake and Greene Valley landfills), and Nicor. All of the required agencies have agreed to sign a memorandum of agreement by July 1, 2024. Project success will be measured based on the volume of methane captured and the quantity of energy produced.

Studies have been performed across the coalition investigating the potential for digester and landfill gas utilization. The objective of these studies was to identify and evaluate reuse alternatives for biogas based on existing production. As alternatives were reviewed for advantages and disadvantages, the Coalition came to consensus that designing and constructing a project to upgrade biogas to pipeline quality RNG and inject into the existing pipeline would substantially reduce GHGs, reduce long-term repair and replacement costs of existing boiler systems, and create a replicable approach for other wastewater treatment facilities and solid waste providers. Converting biogas to energy has been identified as a priority GHG reduction strategy in the Chicago MSA Priority Climate Action Plan as **Strategy 12, W1, Manage Water and Waste Sustainably.**

This project was conceptualized in relation to the EPA's 2022-2026 strategic plan and directly supports goals one, five, and six – tackle the climate crisis, ensure clean and safe water for all communities, and safeguard and revitalize communities by reducing waste and preventing environmental contamination. Not only will the capture of biogas for energy help mitigate the climate crisis by decreasing emissions, it will also help the Chicago MSA accelerate resilience and adaptation to climate change impacts by increasing the resilience of its waste treatment infrastructure. Economic infrastructure sectors are interconnected and include energy, transport, water, wastewater, waste, and digital communications. This Project will increase resilience in these sectors by addressing governance structures through collaboration, creating new built infrastructure networks that holistically address energy, water, and wastewater, upgrading critical infrastructure systems, and avoiding GHG emissions.

Capturing biogas for energy conversion displaces the combustion of fossil-derived fuels and contributes to grid decarbonization. The project also indirectly supports goal four – ensure clean and healthy air for all communities - by reducing co-pollutants like VOCs, particulate matter, and ground-level ozone that are emitted during biogas flaring. Because at least half of the participating Coalition member operations are located in or near low-income disadvantaged (LIDAC) census tracts, environmental justice (goal two) is also advanced by reducing pollution levels in these historically underserved communities.

Wastewater treatment facilities and solid waste providers can adjust operations in any number of ways to reduce GHGs and have a transformative impact on the communities they serve. This Project is unique because the Coalition members have already been executing the strategies that are considered ‘low-hanging fruit’ including operating anaerobic digesters, installing solar power systems, and upgrading to energy efficient equipment and process controls. As both public and private sectors are asked to maintain levels of performance often with increasingly limited financial resources, it is difficult to do more than simply maintain, repair, and replace failing infrastructure. This Project is an opportunity to pilot market adoption of an emerging GHG practice and go beyond traditional operations. Partners selected this as a priority project because of the existing biogas infrastructure at all of the partner facilities, the varying degrees of energy offset projects already in place, and the potential to reduce flaring and improve air quality.

As the Project moves into design, construction, and implementation, the following general risks will be considered, and strategies to reduce risks and associated impacts will be integrated into design and project operations. It is not anticipated that the risks listed below would delay or interrupt implementation.

General risks include:

1. Ability to procure gas treatment equipment due to supply chain constraints. Proper planning and alternative equipment options will be used to mitigate this risk.
2. Ability and size of labor force to install gas treatment equipment and injection points. This will be mitigated by developing partnerships with contractors to identify appropriate training to upskill existing employees’ abilities to perform the required work.

Proactive planning measures and a deep understanding by industry professionals of the technical risks and assumptions associated with the implementation of an RNG development project of this scale will moderate the extent to which projected GHG reductions are affected.

Under a high-emissions scenario, water demand from all sectors is expected to increase by up to 12% for the Chicago MSA, putting additional strain on an already stressed infrastructure system. **The American Society of Civil Engineers identified a gap of \$81 billion dollars for annual capital investments** for water and wastewater infrastructure. As the Clean Water Act (1972) investments are reaching the end of their service lives, wastewater treatment facilities are struggling to maintain the status quo

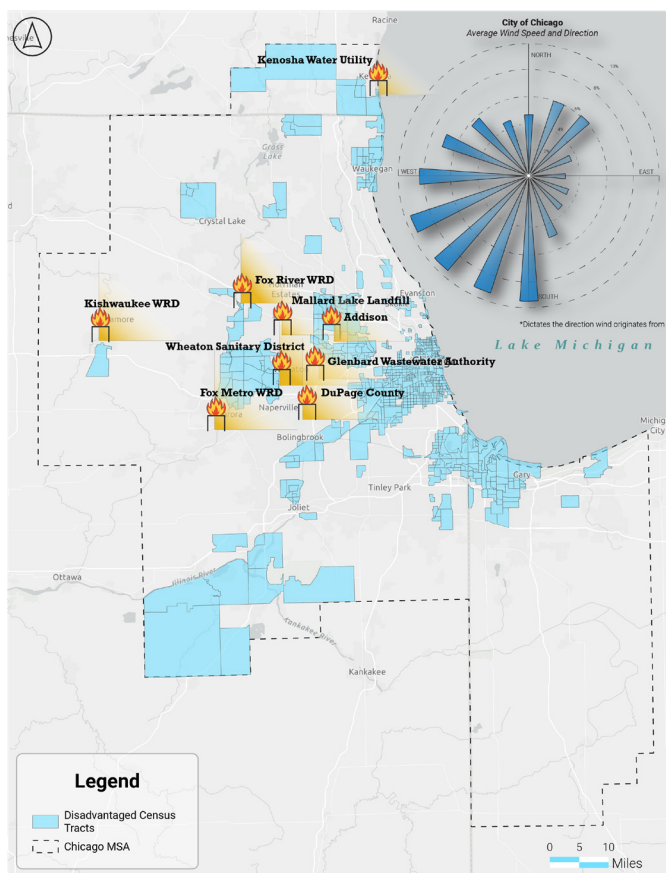


Figure 1.1. Map of methane flaring locations in relation to disadvantaged census tracts

of operations. This hinders their ability to function as anchor institutions and think about long-term and layered investments in infrastructure and how those investments can reduce GHG emissions and benefit the community. This funding opportunity will give these critical infrastructure providers the capital investment necessary to advance a large-scale systems improvement project that increases value capture from waste treatment operations, provides for immediate GHG reductions, offsets fossil fuel use, and creates a scalable and replicable approach for other partners.

Per the EPA, RNG project development faces two types of barriers: economic and technical.² Fox metro is shovel-ready and has addressed technical issues which will be carried forward at the other coalition member locations. Award of funding from the Climate Pollution Reduction Grant Program (CPRG) will allow the Coalition to overcome the remaining economic barrier to implement an impactful and innovative project that significantly reduces GHG emissions. With Nicor as a committed partner and an approved contract with the lead applicant, project components such as injection specifications and treatment processes have been successfully navigated and will be carried forward to other locations.

This network and grid system, strengthened by the Coalition members' cooperative partnerships, will enable remaining members to complete project setup quickly, implement lessons learned, and minimize technical challenges. Remaining contracts and negotiations can be replicated efficiently. The Project will require initial investments in capital costs as well as annual operating and maintenance costs and annual costs associated with Nicor (some of which is committed as in-kind contributions by Coalition members). The funding provided via the CPRG Program will address initial capital costs related to building four pipeline interconnections and investing in equipment and infrastructure required to deliver RNG at each of the Coalition member facilities. It is anticipated that the sale of brown gas and Renewable Identification Numbers (RINs) will offset the operations and maintenance costs, with the potential for surplus rate stabilization to benefit ratepayers. The payback structure will depend on the RNG flow rates and the amount of funding received.

1.2 DEMONSTRATION OF FUNDING NEED

After extensive exploration of potential funding sources during previous Coalition RNG planning studies, it has been determined that outside of direct funding from capital budgets, the CPRG Program is the only funding source to support this Project and realize the level of substantial GHG emissions reduction that the Chicago MSA has deemed required to combat climate change and improve the health of our communities. Coalition members have spent capital funds to develop initial plans that demonstrate RNG production is a viable and cost-effective alternative compared to current operations. Coalition members are not able to invest further because capital funds are required for repair and replacement of essential assets. **Without CPRG Program support, this project will not move forward and will result in continued flaring and emissions releases for an indefinite period of time.** Wastewater treatment facilities and landfills are committed to this project but have limited resources based on ratepayer revenue, which first must be used on primary organizational goals including meeting EPA effluent discharge standards (and planning for future ones) and replacing aging infrastructure.

Revenue from the Project's sale of RNG will strengthen the ability of Coalition members to achieve and maintain regulatory standards and will reduce the increasing burden on annual operating budgets. This revenue also positions the project to be financially self-sustaining. **The Coalition will not require future grant infusions to maintain GHG reductions.** Additionally, Coalition members understand that low-income and disadvantaged communities experience a disproportionate financial burden by spending more substantial percentages of income on utility bills compared with white and more affluent counterparts. Revenue from Project operations will reduce the need to increase rates, thus reducing

² Imop_rng_document.pdf (epa.gov)

potential future economic burdens. Although Coalition member serve over one million people, they are individual smaller entities with a limited ratepayer base and often cannot afford to finance such large and innovative infrastructure upgrades through traditional credit markets. Implementing the project through rate increases would result in a cost burden passed to ratepayers; avoiding this total cost burden would simply not be feasible without securing outside sources of funding.

The Coalition understands the impact of financial constraints and have explored outside funding from a variety of sources to supplement the direct costs to the Coalition, its members, and ratepayers across the region. Loan programs such as the Illinois State Revolving Fund (SRF) and the EPA Water Infrastructure Finance and Innovation Act (WIFIA) are two viable options, but these programs provide access to credit (with the exception of principal loan forgiveness under the SRF) that will need to be paid back, resulting in a cost burden to an already stressed ratepayer base. The funding available from the SRF and WIFICA are dwarfed by the demand. The Illinois SRF has approximately \$2 billion dollars' worth of projects on the intended funding list with only \$450 million dollars available annually. With a total estimated cost of \$196.3 million dollars, the return on investment for this project would span too long of a timeline for the initial investment to make financial sense, despite its direct environmental benefits.

This application to the CPRG Program presents the only feasible opportunity to overcome the remaining barrier to implementation by making this important work financially viable and alleviating any future cost burdens from this project on ratepayers. The EPA's grant assistance is critical to make this vision a reality. Too often, innovative projects such as this are unable to overcome the financial challenges that come with initial investments. The Coalition has done its due diligence to research, plan, and partner to arrive at the implementation phase. An award of funding from the CPRG Program would overcome initial cost barriers to a project whose operations will provide additional streams of revenue that help meet current and future infrastructure integrity goals while lessening the economic burden that these needed improvements place on ratepayers. In addition, the revenue generated will provide a financially self-sustaining model.

1.3 TRANSFORMATIVE IMPACT

The EPA encourages the recovery and beneficial use of biogas as a renewable energy source strategy to reduce emissions and provide additional environmental, community, and economic benefits. Coalition members understand that to support regional GHG reduction efforts and air quality goals, a substantial and coordinated investment must be made to fully utilize biogas. Pioneering a comprehensive biogas recovery process in America's third largest metropolitan area creates a replicable and scalable process for other regional consortiums and producers of biogas.

Implementing the Project results in immediate return on investment for GHG emissions reductions and positions Coalition members and future partners to build onto the system. Reimagining wastewater treatment facilities and landfills as resource recovery facilities could impact their role in future circular economy strategies. Investing in biogas capture, treatment, and pipeline injection has the potential to pave the way for co-digestion programs, whereby food and organic waste can be added to existing anaerobic digesters at wastewater treatment facilities with excess capacity. The existence of a functional, efficient biogas recovery system would incentivize the addition of new feedstocks (like food and agricultural waste) that increase yield and rate of return by leveraging economies of scale.

All emissions sectors must make substantial changes and investments to reduce GHGs. For wastewater treatment facilities and landfills, emission reduction strategies are substantially more limited and more costly because of the scale of the emitting entities. Coalition members have diligently invested in GHG reduction strategies to date and need this funding to be able to take the next step in climate action.

Investments in this project not only reduce GHG emissions but will diversify fuel supply, increase fuel security, and improve local air quality (that disproportionately impacts low-income and disadvantaged communities). The implementation of this project sets the stage for more robust resource circularity and emissions reductions in the organics sector, and it champions anchor institutions like waste treatment facilities as primary public sector actors that invest in the long-term sustainability of the communities they serve.

2.0 IMPACT OF GHG REDUCTION MEASURES

Each member of the Coalition is producing biogas as part of daily operations. Natural anaerobic processes in wastewater digesters and landfills generate biogas from waste material, of which combustible methane is a significant component.

This project provides the opportunity to upgrade the biogas currently being produced and create pipeline-quality RNG. This RNG would then be distributed into the Nicor service natural gas transmission lines via onsite RNG processing facilities. It is assumed that the biogas currently produced at the wastewater treatment facilities contains 60% methane, 40% carbon dioxide, and trace amounts of nitrogen and oxygen. The landfill gas contains approximately 50% methane, 40% carbon dioxide, 8% nitrogen, and 2% oxygen with trace amounts of other compounds. To upgrade the existing biogas to pipeline-quality RNG, all of the gas constituents other than methane need to be removed.

Table 2.0. Average biogas produced per Coalition member

Coalition Members	Cubic Feet per Day (CFD)
Chicagoland Wastewater Treatment Facilities (Fox Metro Water Reclamation District, Wheaton Sanitary District, DuPage County Wastewater Division, Fox River Water Reclamation District, Kishwaukee Water Reclamation District, Glenbard Wastewater Authority, Kenosha Water Utility, Village of Addison Wastewater Plant)	1,742,000
Forest Preserve District of DuPage County (Mallard Lake and Greene Valley landfills)	2,535,811

Conditioning process requirements include the following gas treatment systems which are common to all of the facilities:

H₂S Removal: H₂S is removed from gas using either biological or media-based removal systems. It is assumed that the tariff limit for H₂S is 0.25 grains per 100 scf.

Moisture Removal: Moisture levels impact the efficiency of downstream siloxane and volatile organic compounds (VOC) removal and can affect the efficiency of the gas use equipment. It is anticipated that the tariff limit for moisture content is 4 pounds per MMscf maximum.

Siloxane and VOC Removal: It is assumed that siloxane and VOCs will be removed using activated carbon or a similar media.

Carbon Dioxide Removal: Carbon dioxide removal is required to produce RNG suitable for pipeline injection (or as a direct vehicle fuel). It is assumed that the tariff limit for carbon dioxide is 2% of the total volume. CO₂ will be removed by membrane systems at the wastewater treatment facilities and by pressure swing absorption at the landfills.

In addition to the treatment systems noted above, the landfill installations will need to include nitrogen/oxygen removal. Air is easily entrained into landfill biogas because of the open nature of a landfill.

Therefore, nitrogen and oxygen are required to be removed in a separate step from the landfill gas, which is typically accomplished using a second stage of pressure swing adsorption.

The removal of CO₂ during the RNG conditioning process puts the coalition in a position to capture this CO₂ in the future if it becomes cost effective to do so. This market is currently underdeveloped, but it would be a source of potential future revenue and GHG reductions. Without capture, the released CO₂ has no net impact on GHG emissions because it is biogenic and would be emitted through flaring if not released during RNG treatment.

The following assessment provides an overview of the assumptions, methodology, and GHG reduction estimates for 2025-2050. A detailed description of GHG reduction quantifications is included in the Technical Appendix.

2.1 MAGNITUDE OF GHG REDUCTIONS FROM 2025 THROUGH 2030

Converting biogas produced by the coalition facilities to RNG is a proven technology that will offset fossil natural gas usage, resulting in significant reductions in carbon intensity when accounting for emissions from fuel production and transport. Emissions from fossil-derived natural gas combustion are displaced by carbon-neutral biogenic emissions from RNG, and methane emissions from biogas leakage or flaring are avoided. Burning RNG as an energy source is carbon negative if the emissions attributable to fossil carbon (from RNG operations) are less than the displaced emissions from conventional natural gas use and methane leakage.

Table 2.1. GHG reductions for 2025-2030

Member Type	First Year Of Gas Production	2025-2030 GHG Reductions (MTCO ₂ e)
Wastewater Treatment Facilities	2026 (Fox Metro) & 2027 for remaining wastewater treatment facilities	-25,211
Landfills	2027	-247,805
Total		-273,016

2.2 MAGNITUDE OF GHG REDUCTIONS FROM 2025 THROUGH 2050

Table 2.2. GHG reductions for 2025-2050

Member Type	First Year Of Gas Production	2025-2050 GHG Reductions (MTCO ₂ e)
Wastewater Treatment Facilities	2026 (Fox Metro) & 2027 for remaining wastewater treatment facilities	-135,051
Landfills	2027	-983,818
Total		-1,118,869

2.3 COST EFFECTIVENESS OF GHG REDUCTIONS

The cost-effectiveness of the proposed GHG reduction measure for the five-year period 2025-2030 is estimated at \$719 per metric ton of CO₂e reduced. This drops to \$175 per metric ton of CO₂e when the time period considered runs from 2025-2050. One factor contributing to the dollar per MTCO₂e ratio in the first period is the scale of the project. Due to the complexity and increasing lead times of equipment and material supplies, the implementation phase will not start until 2027 for most participating facilities – only Fox Metro will start by 2026. Multi-million-dollar waste treatment facility projects require multi-year construction schedules. Cost-effectiveness of the measure becomes more favorable once all facilities are actively capturing biogas for treatment.

Table 2.3. Cost effectiveness of GHG reduction measure

Time Frame	Sum of Quantified GHG Reductions (MTCO ₂ e)	Cost Effectiveness of GHG Reductions (\$/MTCO ₂ e)
2025-2030	-273,016	\$719.01
2025-2050	-1,118,869	\$175.45

A substantial investment in capital costs is required for this project, however, initial investments will support the creation of a financially self-sustaining resource recovery infrastructure that continuously adds value over time. Biogas that was previously flared will be captured and converted to renewable natural gas – displacing fossil-derived natural gas procurement costs and extracting energy from a readily available but underutilized waste stream. Revenue generated from this Project will be used to cover operating and maintenance costs and reduce the burden to ratepayers. Participating facilities will eventually be able to sell treated RNG under the Renewable Fuel Standards program, offsetting operating costs. There will be no need for future grants to keep the project active. Additionally, once the infrastructure is in place, there is room in the future to extract even more value with the creation of a complementary compressed natural gas (CNG) program to fuel fleets or the addition of food or agricultural waste to increase yield and rate of return from biogas production through co-digestion. Potential future capture of the CO₂ tail gas from RNG conditioning would further reduce GHG emissions and potentially offset the carbon impact of manufacturing CO₂ elsewhere.

2.4 DOCUMENTATION OF GHG REDUCTION ASSUMPTIONS

The GHG emissions reduction estimates utilize the U.S EPA’s Simplified Greenhouse Gas Emissions Calculator (SGEC). This process aligns with the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard. Detailed information on calculation methods and emission factor are provided in the Technical Appendix. Calculations were performed using the following assumptions:

- ▶ GHG emission reduction calculations include the electricity for the new RNG equipment and trucking fuel from each site to Fox Metro and the other injection locations. Avoided fossil-based natural gas production was included as a negative emission rate to enable a determination of overall GHG reductions. Scope 1 and 2 GHG emissions were calculated.
- ▶ Baseload emission factors were included in the EPA spreadsheet.
- ▶ Landfill gas volumes are based on LandGEM modeling at the two landfills. Landfill gas volumes are projected to decrease over time since the two landfills are not currently accepting solids waste.
- ▶ Biogas production from the wastewater treatment facilities is based on actual gas flow

measurements and is assumed to remain essentially constant over time. This is a conservative assumption since the MSA is expecting water use to increase 12% under a high-emissions climate scenario.

- ▶ Biodiesel will be used for hauling the RNG to Fox Metro and the other injection locations.
- ▶ Truck mileage rate for the RNG tanker trucks is 6.5 miles per gallon.
- ▶ Landfill gas from the two landfills will be upgraded to RNG and sent directly to the natural gas pipeline versus requiring the need to truck the landfill gas to an injection site.
- ▶ First year of gas production will be 2027 (with the exception of Fox Metro which is calculated to begin gas production in 2026).
- ▶ Wastewater treatment facility digester gas BTU content was assumed to be 600 BTU/ft³ and landfill gas BTU content was assumed to be 500 BTU/ft³.

3.0 ENVIRONMENTAL RESULTS – OUTPUTS, OUTCOMES, AND PERFORMANCE MEASURES

3.1 EXPECTED OUTPUTS AND OUTCOMES

The GHG reduction strategy of capturing wastewater treatment facility and landfill biogas for energy aligns with several objectives from the EPA's 2022-2026 Strategic Plan Framework. Objective 1.1 is to reduce emissions that cause climate change, objective 4.1 is to improve air quality and reduce localized pollution and health impacts, and objective 6.2 is to reduce waste and prevent environmental contamination. The output of this reduction measure is the percentage and volume of biogas captured from publicly owned wastewater treatment facilities and landfills for injection as RNG into an existing pipeline. Not only will this decrease the amount of biogas methane flared and the associated co-pollutants, but it will also displace the use of fossil-derived natural gas. Each unit of RNG produced displaces the same amount of fossil-derived natural gas, and biogenic emissions from the combustion of RNG are theoretically carbon neutral. The outcomes of the project will therefore be tons of reduced GHG emissions and ambient air concentration reductions of criteria air pollutants like ozone, particulate matter, and VOCs. Other outcomes will include a less carbon intensive local energy grid and lower utility billing rates due to the revenue generated from the recycling of waste biogas. The anticipated results of this project support the objectives of the 2024 Chicago MSA Priority Climate Action Plan and the 2021 Chicago Climate Action Plan to decarbonize energy sources and manage water/wastewater and waste sustainably.

Because of the proximity of several participating facilities to LIDAC census tracks, these benefits, along with lowered utility bills from resource circulation, will be distributed among low-income and disadvantaged communities. Table 3.1 summarizes the outputs and outcomes for this reduction measure.

According to estimates produced during the development of the Priority Climate Action Plan for the Chicago MSA, this reduction measure is anticipated to generate 273,016 MTCO₂e of cumulative reductions through the year 2030, and 1,118,869 MTCO₂e of cumulative reductions through the year 2050. Because pollutants like ozone, VOCs, and particulate matter are cogenerated with the flaring of biogas, it is expected that the project will also result in regional reductions of these criteria air pollutants.

Table 3.1. Outputs and outcomes for biogas recovery reduction measure as identified in the Chicago MSA Priority Climate Action Plan

Objective	Priority GHG Reduction Strategy	Reduction Measure Output	Timeline	Outcome	Co-Benefits
Manage Water and Waste Sustainably	Capture biogas and convert it to energy.	Capture 25% of biogas from publicly owned wastewater treatment facilities in the Chicago MSA and additional landfill biogas and convert to renewable natural gas.	1-5 years	Estimated reduction: 30,318 MTCO ₂ e annually by 2027	Reduced methane gas emissions and resulting VOCs and ground-level ozone. Displacement of fossil fuels. Reduced exposure for DACs (Disadvantaged Communities). Lower utility bills.

Additional outputs include progress reports and a final report whose schedules and content are detailed in the next section. Enhanced community engagement will also be a priority upon project implementation, as tracked by the number of public tours given that highlight the new biogas capture capability and its relationship to resource circularity and sustainability. Populations exposed to project news and its broader thematic sustainability attributes through press releases and informational campaigns will also be tracked over time by the Coalition.

3.2 PERFORMANCE MEASURES AND PLAN

Some of the performance metrics that will be used to track, measure, and report on progress toward expected outcomes include volume of methane captured, total energy production from captured methane, number of regional wastewater treatment facilities and landfills participating in biogas capture, the amount and total value of renewable identification numbers (RINs) created for injected gas, and air quality metrics from regional monitoring stations. Other measures to track project success will include budget adherence, cost breakdown, cost variance, and timeliness of contracted work.

Table 3.2. Primary performance measures and tracking metrics

Performance Measure	Tracking Metric	Goal
Volume of Biogas Converted to RNG	CFD (average 2028-2030)	8,600,000
RNG Produced = Displaced Fossil Natural Gas	MMBTU/day (average 2028-2030)	5,800
Number of Participating Wastewater Treatment Facilities and Landfills by 2028	Facilities	10
Equivalent Number of Homes' Energy Use	Average 2028-2030	15,000
<i>The volume of biogas captured and energy produced over time will generally decrease due to the landfills' decrease in output. An average value is shown for 2028-2030.</i>		

In accordance with reporting requirements for the CPRG Program, progress reports will be completed every 6 months after funding is awarded. These reports will include status updates with relevant performance measures up to the point of successful implementation, after which GHG reductions will be quantified. GHG reductions will be calculated from several metrics: avoided greenhouse emissions from methane flaring and leakage, displaced fossil natural gas from RNG pipeline injection, energy required to treat RNG, and transportation emissions from RNG trucking. Fox Metro will be one of the four designated sites for RNG injection that participating facilities will ship treated biogas to.

The Coalition will be the primary entity responsible for quantifying semi-annual emissions reduction estimates. The Lake Michigan Air Directors Coalition (LADCO) will be consulted to track progress regarding criteria air pollutant reduction. Their network of air monitoring stations, especially those located within LIDAC census tracts, will be used to track associated reductions in ozone, particulate matter, and VOCs resulting from decreased flaring activity at participating treatment plants. There are over 50 stations that monitor these pollutant levels within the boundaries of Chicago MSA. The Coalition will consult with LADCO every six months after funding is received to gather available air quality reports and trend analyses for pollutants of concern at stations closest to participating facilities.

The results of reduction quantification will be compared to estimates in the Chicago MSA PCAP to track alignment with the proposed reduction measure outcomes. The development of the CCAP (Comprehensive Climate Action Plan) for Chicago MSA will provide an opportunity to further refine reporting policies and quantification methods, and a final, comprehensive report will be developed for submittal to the EPA (Environmental Protection Agency) by mid-2027 that details cumulative outcomes achieved, along with updated cost estimates, lessons learned, and proposed action items and modifications for continued success.

3.3 AUTHORITIES, IMPLEMENTATION TIMELINE, AND MILESTONES

Fox Metro will be the party responsible for the initial implementation of this GHG reduction measure. They are located directly adjacent to the Nicor gas main, which makes for cost effective injection of treated biogas into the existing pipeline system. Other facilities participating include the Wheaton Sanitary District, DuPage County Wastewater Division, Fox River Water Reclamation District, Glenbard Wastewater Authority, Village of Addison Wastewater Plant, Kishwaukee Water Reclamation District, and the Kenosha Water Utility. The Forest Preserve District of DuPage County, who owns the Mallard Lake and Greene Valley landfills, is another regional producer of biogas that will be involved.

Participating wastewater treatment facilities and landfills and the regional authorities that regulate them have the authority to implement biogas capture and treatment for RNG production. Coordination with Nicor, who owns the pipeline for the proposed RNG injection, will also be necessary.

The Coalition will help coordinate efforts among individual plants, and LADCO will assist with air quality monitoring efforts in the region of interest.

Once funding is received in fall of 2024, implementation will begin with the construction and installation of needed equipment and infrastructure for gas treatment, storage, and injection. Fox Metro and three additional facilities will construct metering and injection sites to be integrated into the existing Nicor pipeline. Each facility will require H₂S removal, moisture removal, siloxane/VOC removal, CO₂ removal, and compression, including Fox Metro. Some facilities already have H₂S, moisture, and siloxane removal, but each facility will need the additional CO₂ and compression steps. Participating landfills must also install equipment for nitrogen and oxygen gas removal.

It is expected that coordination of these construction and equipment upgrade activities will take place over a period of approximately 24 to 36 months after funding is received.

RNG production and injection will begin at Fox Metro by early to mid-2026, with additional treatment plants following by early 2027. For project objectives to be met by the end of the grant period, significant quantities of biogas will need to be treated and injected as RNG into the Nicor pipeline by the end of 2027. The RIN market will be a primary incentivizing driver for participating plants to begin producing and injecting RNG.

4.0 LOW-INCOME AND DISADVANTAGED COMMUNITIES

4.1 COMMUNITY BENEFITS

The Project will confer a wide array of benefits, particularly benefiting low-income and disadvantaged communities, most of which are located downwind of emission sources. This directional impact on these communities is underscored by the map included in 1.1 Description of GHG Reduction Measures, which illustrates prevailing wind patterns that carry VOCs, particulate matter, ozone, and GHG emissions from these sources into these communities and farther abroad. Nearly 58% of communities identified as disadvantaged are located within 20 miles of one of the ten project facilities.

The Project will improve air quality, leading to substantial health benefits by mitigating the incidence of pollution-related ailments prevalent in these communities due to their proximity to these point sources of emissions. The Project will transition away from the traditional method of venting and igniting methane during the process of flaring at participating sites. Transitioning away from flaring can significantly benefit local neighborhoods and residents, particularly in terms of environmental and visual impacts. Flaring often results in a visible flame and can produce a glow in the sky, especially noticeable at night, which can be a visual nuisance to nearby communities. The constant presence of flares can detract from the natural aesthetics of an area and may reduce the quality of life for residents, contributing to a perception of industrialization and pollution. Minimizing or eliminating flaring can enhance the local environment, both visually and in terms of air quality, making the surrounding areas more pleasant and healthier for the residents.



Figure 4.1. Landfill

Reducing flaring can also lead to improved air quality by decreasing the emissions of pollutants such as sulfur dioxide, nitrogen oxides, and particulate matter, which are associated with respiratory problems and other health issues. The enhancement in air quality is also expected to positively influence the overall environmental quality of these areas, fostering healthier ecosystems, and leading to cleaner water and soil conditions.

The Project will aim to cut the Chicago MSA's GHG emissions by 44,755 MTCO₂e yearly. By 2030, the total reduction is expected to reach 273,016 MTCO₂e, expanding to 1,118,869 MTCO₂e by 2050. This reduction is expected to yield numerous secondary benefits that extend beyond its immediate objectives. Among these, the improvement of climate resilience is particularly noteworthy. By lowering greenhouse gas emissions, the Project directly addresses the root cause of climate change. Furthermore, revenue generated can be reinvested into additional carbon capture methods, reduce utility cost burdens on low-income and disadvantaged communities, and facilitate the transition away from fossil fuels to renewable energy for anchor institutions. This advantage is of paramount importance, especially considering that communities which are economically disadvantaged are frequently the ones most susceptible to the detrimental effects of climate change. Such adverse effects include, but are not limited to, extreme weather phenomena and significant fluctuations in temperature. In this context, climate resilience refers to the capacity of these communities to adapt to, recover from, and potentially thrive in the face of these environmental challenges.

The removal of GHG emissions from the atmosphere not only contributes directly to combating climate change but also offers several indirect regional benefits. By actively reducing the amount of GHGs emissions emitted, the Project aids in mitigating the greenhouse effect, a primary contributor to global warming. This, in turn, can lead to a more stable and predictable climate, which is crucial for the planning and security of agricultural and economic activities in the region.

The Project is strategically positioned to function as a catalyst for economic growth within the communities involved. This will be achieved through retooling existing roles to include new skills that can be transferred in the emerging green sectors and job enhancement opportunities provided through the Project. The green sector is characterized by its focus on sustainable and environmentally friendly practices and by providing jobs in these areas, the Project not only aids in reducing barriers to employment but also plays a significant role in the socio-economic development of these communities. This multi-faceted approach encompasses improvements in income levels, education, and overall quality of life, thereby contributing to a more robust and sustainable economic future.

The Coalition and Metropolitan Mayor’s continue to assess the direct and indirect benefits on an annual basis using private and public sector economic and demographic data sources. Air pollution data provided by The Lake Michigan Air Directors Coalition (“LADCO”) will aid in understanding any changes that may have occurred on a regional basis. The amount of recaptured methane and GHG emission reductions will be continuously monitored by the Coalition, who will publish reports every six months detailing the amount of methane captured, VOCs, and MTCO₂e reduced as a result of methane captured.

Table 4.1. Reporting schedule

Midyear Progress Report	Q3 – Annually
Final Report	Q1 – Annually

4.2 COMMUNITY ENGAGEMENT

Truly effective engagement is an art, not a science. It is not about implementing a formula or checking a box, but instead customizing a process to meet the needs of the community and Project, especially when involving communities that are recognized as disadvantaged. To ensure everyone’s voices are included, engagement will be led by the Metropolitan Mayor’s Caucus. The Metropolitan Mayor’s Caucus has crafted a dynamic engagement approach that includes open and honest feedback with the communities within the Chicago MSA as demonstrated by their leadership in the Climate Action Plan for the Chicago MSA, the 2022 Priority Climate Action Plan (PCAP) for the Chicago MSA, and the 2021 Northwest Indiana Climate Action Framework.

For the PCAP, the Metropolitan Mayor’s Caucus engaged 270 people from 175 organizations including 53 diverse municipalities in the Chicago MSA, of which 16 are LIDAC communities. The City of Chicago gathered input from 2,100 residents and Kane County gathered input from 1,100 residents to create their respective climate action plans. Approximately 39% of the total MSA population (3,677,911 of approximately 9.4 million total) lives in areas identified as low income and disadvantaged communities.

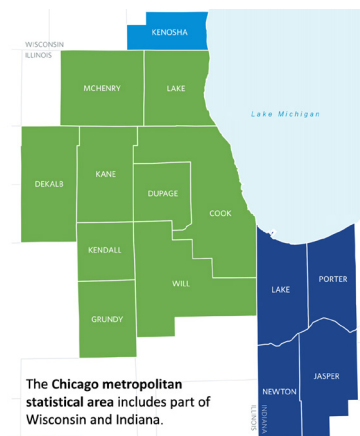


Figure 4.2. Map of Chicago MSA

The prime strategy of the Metropolitan Mayor’s Caucus’s program is the prioritization of inclusive representation. The Metropolitan Mayor’s Caucus will proactively reach out to and integrate diverse voices from within disadvantaged communities. Several organizations actively participated in initiatives to address GHG reduction and climate action within the MSA as part of writing the Chicago Region’s PCAP, demonstrating the power of specific entities in driving environmental change. Notably, municipal bodies such as the City of Chicago, the City of Aurora, the City of Blue Island, the City of Evanston, the City of Highland Park, and the Villages of Oak Park, Oswego, and Bolingbrook along with other LIDAC’s, collaborated to advocate for an e-bike incentive program as a Priority GHG Reduction Strategy. These municipalities, alongside the Metropolitan Mayors Caucus and the Chicago Metropolitan Agency for Planning (“CMAP”), engaged in various meetings and townhalls, leveraging platforms like online surveys and the Mentimeter tool to gather stakeholder input. Their efforts underscore the significant role that both municipal officials and civic leaders, including faith-based organizations, play in shaping environmental policies and strategies, particularly on a day like Sunday, when community engagement might be at its peak.

This will ensure that these liaisons become informed participants in the engagement process and create lines of communication to the Coalition for sustained input and updates.

Table 4.2. *Schedule of engagement*

Website & QR Code Provided	Fall 2024
Online Survey & Engagement Activities (e.g., Mentimeter)	Fall 2024
Workshop/Open House Located within LIDAC Areas	Fall 2024
Virtual Meeting for Planning Updates & Soliciting Stakeholder Feedback	Winter 2024
Virtual Meeting to Communicate Plan Progress Based on Stakeholder Feedback	Winter 2024

Letters of Commitment from Coalition members indicating project involvement along with Letters of Support from stakeholders, environmental justice groups, and other relevant agencies who support can be found in the additional attachments to this application.

5.0 JOB QUALITY

In lieu of creating new roles, the Coalition will focus on providing workforce development and career advancement opportunities for existing staff. Over 170 staff members will be given the opportunity to acquire additional skills, training, and responsibilities to support the implementation, operation, and maintenance of the RNG components in the short and long-term. Examples of these skills include maintaining a gas treatment system, identifying and reporting GHG reductions and developing foundational understanding of the types and benefits of renewable energy sources. Half of the Coalition members expect to engage 50% or more of their staff to support the Project. Several of these skills and competencies are transferable to other “green” and clean energy sectors; equipping wastewater and solid waste professionals with these stackable, broad, and transferable “green” job skills supports the growth of the region’s climate-ready workforce.

Table 5.0. Summary of good job quality practices currently implemented by Coalition members

Recruitment & Hiring	Labor Peace, Union Organizing, & Collective Bargaining	Benefits	Diversity, Equity, Inclusion & Accessibility (DEIA)	Compensation	Health & Safety
practice second-chance hiring policies (the practice of hiring individuals with a criminal record)	employees are represented by a collective bargaining agreement ✓	employer contributions toward health benefit coverage ✓	conduct pay equity audits by gender, race, and ethnicity	assess and determine actions to reduce pay inequities by gender and race	require employees and managers complete workplace hazard training (e.g., OSHA 10 and 30) ✓
recruit from underrepresented communities at universities, colleges, minority-serving institutions ✓	remain neutral during organizing activity ✓	health benefit programs (e.g., wellness programs, flexible spending accounts) ✓	ensure that employees have multiple channels to report concerns, opinions, and feedback ✓	advertise pay ranges for positions ✓	develop health and safety plans in conjunction with workers ✓
eliminate salary history as a basis for screening applicants and pay setting ✓	engage in any formal partnerships with labor organizations and other workers' rights groups	retirement plan (401K or similar program) ✓	ensure your online platforms and physical facilities are accessible to persons with disabilities ✓	conduct pay-equity analysis by gender, ethnicity, and race and report on results transparently	establish clear data confidentiality and protection policies for workforce information ✓
commit to minimizing the use of temporary or contract workers ✓	remove barriers to workers' organizing or collective bargaining ✓	employer match on employee retirement savings contributions ✓	identify a senior leader responsible for developing a DEIA strategy ✓	increase worker wages based on objective measures of performance improvement ✓	offer telework or remote work (where appropriate) ✓
offer job shadow programs and internships with local institutions ✓	participate in voluntary recognition or majority sign-up for union	workers' compensation benefits ✓	eliminate mandatory arbitration and nondisclosure agreements/ clauses as a condition of employment	transparently link part of employee compensation to organizational and/or team performance,	require anti-harassment training for workers and management ✓
in job postings, reduce narrow definitions of relevant prior experience, and count life experiences ✓	allow union organizers access to appropriate onsite, non-work spaces, such as lunch rooms	paid family leave ✓	develop organization-wide & individual opportunities for awareness and DEIA training ✓	ensure bonuses, premium pay, overtime, and scheduling practices are utilized in an equitable manner ✓	disclose OSHA or Whistleblower citations ✓
implement diverse hiring slate policies	make employees aware of their rights to organize and bargain collectively ✓	paid sick/medical leave ✓	identify key data and metrics to measure progress on DEIA	clearly state required skills and competencies for career pathways and ensure that managers apply them ✓	develop clear reporting structures for harassment prevention and response ✓
remove four-year degree requirements from job postings, where appropriate ✓	engage in a labor peace agreement	bereavement leave ✓	create a diversity council or task force that includes senior leaders	conduct an employee classification and compensation study	
create an onboarding checklist (with deadlines) for staff and supervisors ✓		employer funded health savings account ✓			
create an onboarding checklist for new hires that includes important "to do's" with dates ✓		eldercare subsidy or information provided			
establish clear and transparent promotion pathways that prioritize internal candidates ✓		tuition assistance ✓			

✓ Three or more Coalition members currently implementing practice

To ensure that these remain high quality jobs, subject to the highest labor standards, the Coalition will commit to scaling up consistent adoption of the federal Good Job Principles across all coalition members. The table below lists strategies and actions consistent with the federal [Job Quality Toolkit](#) that Coalition members are already taking to ensure high job quality. Strategies implemented by 3 or more members receive a check mark. Moving forward, each Coalition member will consider adopting one additional strategy from each category within a year of project kick-off.

Additionally, the Coalition will consider review and adjustments as necessary to the classification and compensation for staff members responsible for Project operations, consistent with the additional training, skills, and responsibilities acquired.

6.0 PROGRAMMATIC CAPABILITY AND PAST PERFORMANCE

6.1 PAST PERFORMANCE

The Coalition pursuing the Project will be led by Fox Metro with support from all Coalition members – Wheaton Sanitary District, DuPage County Wastewater Division, Fox River Water Reclamation District, Kishwaukee Water Reclamation District, Glenard Wastewater Authority, Kenosha Water Utility, the Village of Addison Wastewater Plant, and The Forest Preserve District of DuPage County (Mallard Lake and Greene Valley landfills). Fox Metro has 97 staff with a combined average of over a decade of relevant experience for staff that have been directly involved in programmatic and administrative tasks related to federal funding.

Fox Metro, based in Oswego, Illinois and acting as the lead agency in the Coalition, has a reputable history of completing substantial infrastructure projects on time and on budget. Since 2009, Fox Metro has been awarded seven State Revolving Fund (SRF) loans that collectively created \$183 million dollars in funding assistance to support projects that aligned with the organization's primary objectives, including improvements to its North and South facilities and the construction of the Cedar Glen Subdivision Sanitary Sewer and lift station. Fox Metro's experience in delivering successful climate enhancing projects under the parameters of SRF loans will be a strategic benefit to coordinating and monitoring the delivery requirements of the CPRG Program, including ensuring that all materials subject to BABA are sourced domestically and that contractors are providing compensation in-line with rates and labor classifications that align with Davis-Bacon prevailing wages.

Fox Metro has previously been awarded federal funding in the form of State Revolving Fund (SRF) Loans through the Illinois EPA. With these loans, Fox Metro has been responsible for and successful in fulfilling and managing the required compliance activities and reporting that is associated with being awarded federal funding. In total, Fox Metro has administered hundreds of millions of dollars in federal funding towards its water and sewer projects. For all federally funded loans, Fox Metro has established and maintained practices to ensure that financial records relating to the project in accordance with all state and federal regulations, including but not limited to issuance of Special Board Ordinances/Bond Ordinances for the repayment of loan funds and Ordinances establishing revised user rates to ensure a source of revenue for repayment of loan funds, development of a fiscal sustainability plan, enforcing requirements for all disadvantaged business enterprise requirements for all contracts, compliance with all requirements for use of domestic iron and steel, successful completion of required single audit, retention of all records related to the project, and completion of all training, operation and maintenance documents.

Table 6.1. Federal funding experience

Federal/ Passthrough Grantor	Project	SRF Loan Number	Loan Amount	Reporting Summary
U.S. EPA via Illinois EPA SRF	North Facility Improvements	L17-5391	\$ 3,745,105.53	All programs have been deemed compliant through our annual singular audit conducted by our outside auditor, including submission of interim and final reports.
U.S. EPA via Illinois EPA SRF	Excess Flow Treatment Facility	L17-2887	\$ 13,838,916.19	All programs have been deemed compliant through our annual singular audit conducted by our outside auditor, including submission of interim and final reports.
U.S. EPA via Illinois EPA SRF	Cedar Glen Subdivision Sanitary Sewer	L17-1529	\$ 1,842,136.73	All programs have been deemed compliant through our annual singular audit conducted by our outside auditor, including submission of interim and final reports.
U.S. EPA via Illinois EPA SRF	Montgomery/Sugar Grove Interceptor	L17-8454	\$ 2,203,060.70	All programs have been deemed compliant through our annual singular audit conducted by our outside auditor, including submission of interim and final reports.
U.S. EPA via Illinois EPA SRF	South Wastewater Treatment Plant	L17-2638	\$ 116,267,112.17	All programs have been deemed compliant through our annual singular audit conducted by our outside auditor, including submission of interim and final reports.

Project Descriptions

North Facility Improvements: Improvements made to wastewater treatment facility to expedite the need for enhanced phosphorous removal from sewage. This project improved the overall water quality in the receiving streams for beneficial recreational use and provides for healthier and sustainable aquatic life.

Excess Flow Treatment Facility: Expansion to the wastewater treatment facility to intercept and treat large stormwater flows before entering the treatment plant. The results of this project continue to help avoid treatment process issues or sewer overflows to the Fox River.

Cedar Glen Subdivision Sanitary Sewer: Infrastructure improvements to update and improve sanitary service on existing aging collection system.

Montgomery/Sugar Grove Interceptor: Extension of interceptor sewer to allow for future population growth and expansion of sanitary services to a larger service area.

South Wastewater Treatment Plant: Construction of wastewater treatment facility to expedite the need for enhanced biological phosphorous removal from wastewater. This project improved water quality in the receiving streams for recreational use and aquatic life and allows for future growth of the surrounding communities by providing enhanced treatment of domestic sewage.

6.2 REPORTING REQUIREMENTS

Fox Metro has an extensive history of compliance with all EPA reporting requirements, specifically, for all SRF loans listed above, and all projects have been deemed compliant through an annual single audit performed by an outside auditor, including submission of interim and final reports. Fox Metro implements the required construction contract language in all publicly advertised bids to contractors and strictly adheres to a federally approved competitive procurement process by issuing and scoring RFPs (Request for Proposals) using a professional internal procurement team. Additionally, Fox Metro is well versed in compliance with American Iron & Steel (AIS) and Davis-Bacon Wage Requirements. For all the SRF loans that have been issued that carried AIS requirements, Fox Metro has successfully documented compliance using step verification processes and has kept up with all required reporting including logging AIS products, maintaining up-to-date records, and frequently working with prime contractors on AIS certifications for products purchased and installed on the project to avoid a noncompliance event. These comprehensive practices are applied to Davis-Bacon wage requirements as well, and Fox Metro has been consistent in logging contractors' payrolls and obtaining wage determinations for all work performed on projects receiving federal funding.

The Coalition has partnered with the Metropolitan Mayor's Caucus to lead public and stakeholder engagement as a trusted local partner that understands the need to balance and integrate stakeholder and community needs and perspectives. The Metropolitan Mayors Caucus is a membership organization of the Chicago region's 275 cities, towns, and villages. Founded in 1997 by then Chicago Mayor Richard M. Daley and leading Mayors from nine suburban municipal groups, the Mayors Caucus pushes past geographical boundaries and local interests to work on common-ground public policy issues. The Caucus provides a forum for metropolitan Chicago's chief elected officials to collaborate on common problems and work toward a common goal of improving the quality of life for the millions of people who call the region home. As the agency lead for the Chicago MSA Priority Climate Action Plan, the Metropolitan Mayor's Caucus has the broad reach, public trust, and experience necessary to provide robust, meaningful engagement for the project.

Furthermore, Fox Metro and its staff have demonstrated through their previous success in meeting all reporting requirements that they are fully equipped and prepared to handle the new requirements that will come with the full implementation of Build America, Buy America (BABA). By implementing the same practices and internal controls it has for AIS and other construction-related federal requirements, Fox Metro will carefully track and abide by the extended requirements included in BABA to ensure all iron, steel, manufactured products, and construction materials are produced and sourced from the United States of America.

No audits are known to have been conducted on these loans and there are no adverse audit findings.

6.3 STAFF EXPERTISE

Fox Metro's proven success in administering federal funding has been driven by expert staff. Fox Metro will create a comprehensive project plan that identifies key project leadership roles including Project Manager, Advisors, and Engineers. Karen Clementi took over as District Manager in 2022, and previously served as the Assistant District Manager during which her duties included regulatory and public relations management. Karen has led multiple public outreach efforts and coordinated timely completion and submission of District regulatory reports. Prior to working at Fox Metro, Karen had 20 years of experience in the environmental industry working as a scientist and environmental project manager in the region. With over two decades of work on environmental projects, permitting, and project auditing, Karen boasts extensive knowledge on municipal and private environmental improvement efforts of all

kinds. As District Manager, Karen will oversee the Coalition's efforts to secure and administer this federal award, putting her previous compliance and funding administration experience towards the project's compliance and reporting requirement efforts.

James Kerrigan is a Senior Project Engineer at Fox Metro who has held that title for over a decade. James has been responsible for planning, design, and construction management of district capital improvement projects for wastewater treatment facilities and collection systems. Additionally, he has developed budgets, performed engineering studies, and worked directly with methane gas reuse and capture onsite. James will be a critical support for the Fox Metro's effort in leading the Coalition in undertaking this project and successfully implementing natural gas recapture on a widescale level. Full bios and resumes can be found in the Team Biographies Attachment.

Overall, Fox Metro will employ an organizational structure that ensures project roles and responsibilities are clearly defined from the start. Additional support staff will be provided by other district staff and the leadership teams of other Coalition members in the areas of planning, business development, GIS (Geographic Information Systems), and anywhere else support is needed to administer the grant and fulfill all requirements.

7.0 BUDGET

7.1 BUDGET DETAIL

The Coalition will implement project activities in adherence with a well-defined budget that quantifies anticipated costs for personnel and fringe, travel, equipment and supplies, and contractor agreements necessary to design and construct the project. This project is a key objective of the Chicago MSA PCAP to reduce GHG contaminants throughout the Chicago MSA. Several feasible project alternatives were reviewed, each with a unique budget package reflective of project components necessary to implement its GHG reduction measures. This Project was identified as the most beneficial GHG emissions reduction project due the ability to capture nearly all methane emissions, the flexibility for future CNG vehicle fleet fueling and additional biogas feedstocks, positive public relations to support sustainability initiatives, and a cost-effective budget structure.

The project seeks to reduce GHG emissions from these productions by a combined 44,755 metric tons annually. The years spanning 2025-2030 will reduce GHG emissions by 273,016 metric tons, and 1,118,869 metric tons of GHG emissions will be reduced from 2025 - 2050.

The consolidated budget for the GHG Measure project that seeks to reduce 44,755 metric tons annually among the ten Coalition agencies is available as Table 7.1. It delineates the anticipated budget needed for Coalition personnel, fringe benefits and travel as well as equipment, and contractual obligations for each year of the project's 5-year duration. The grand total across all budget categories and years sums to \$196,301,500. Year 3 consumes the largest amount (46%) of the overall budget, with years 2, 3, and 4 collectively receiving 96% of the overall budget.

Note: A comprehensive budget table is available in the Budget Appendix.

Table 7.1. Consolidated budget summary

Budget by Year							
Cost-Type	Category	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Direct Costs	Total Personnel	\$100,000	\$105,000	\$110,000	\$116,000	\$112,000	\$553,000
	Total Fringe Benefits	\$17,000	\$18,000	\$19,000	\$20,000	\$21,000	\$95,000
	Total Travel	\$2,700	\$2,700	\$2,700	\$2,700	\$2,700	\$13,500
	Total Equipment	\$0	\$37,758,000	\$84,037,000	\$46,616,000	\$0	\$168,411,000
	Total Supplies	\$0	\$0	\$0	\$0	\$0	\$0
	Total Contractual	\$6,787,000	\$10,159,000	\$6,793,000	\$3,428,000	\$62,000	\$27,229,000
	Total Other	\$0	\$0	\$0	\$0	\$0	\$0
	Total Direct	\$6,906,700	\$48,042,700	\$90,961,700	\$50,182,700	\$207,700	\$196,301,500
	Total InDirect	\$0	\$0	\$0	\$0	\$0	\$0
Total Funding		\$6,906,700	\$48,042,700	\$90,961,700	\$50,182,700	\$207,700	\$196,301,500

7.2 EXPENDITURE OF AWARDED FUNDS

Compelling the Coalition to deliver the project on time and on budget is the nature of the work itself; the Chicago MSA already endures alarmingly high rates of air pollutants, and the timely completion of this GHG reducing project will play an important role in enhancing the atmosphere for the MSA. Fox Metro, the lead agency in the Coalition, will lean into its strong record of managing federally funded projects to ensure that project expenditures align with the established budget and delivery milestones.

Of the project's \$196,301,500 budget, only a small portion, \$661,500 (0.33%), is allocated for Coalition related personnel and travel. The project anticipates hiring one full-time Project Administrator with a \$100,000 annual salary, earning at least a 5% annual raise for the duration of the project, with an associated 17% annual fringe rate. CPRG Program funds will be eligible to cover these personnel costs in accordance with 2 CFR 200.430(b), which states "compensation for employees engaged in work on Federal awards will be considered reasonable to the extent that it is consistent with that paid for similar work in other activities of the non-Federal entity." The Coalition will approach the selection of the Project Administer prudently to ensure the selected candidate is qualified to oversee that Project construction is proceeding at pace and on budget. The travel budget reflects a \$2,700 annual budget for the project administer to attend an annual conference and includes conference registration, airfare, hotel, and a per-diem for 5 days. Any CPRG Program funds used to cover travel will be in accordance with 2 CFR 200.475(a) and at rates established by the Goods and Service Tax thresholds for the county in which the conference will be held.

The bulk of the project's budget falls under the Equipment category, with the 5-year outlay tagged at \$168,411,000, or 85.79% of the overall budget. A significant portion of these materials will be sourced domestically to comply with the Build America Buy America (BABA) requirement of the CPRG Program, which mandates domestic procurement for all iron, steel, construction materials and manufactured products that will be permanently installed into the project. These parameters exist even if project monies used to purchase the materials are not necessarily sourced from the CPRG Program funds.

To ensure that all parties involved in the purchasing and installation of equipment and supplies are aware of these conditions, the Coalition will hold internal meetings to develop tracking logs for materials that will comply with BABA. Any materials that would benefit from pursuing a BABA waiver (availability, cost, or public interest) will be flagged on the tracking log and appropriate subsequent measures will be taken. Contractors selected to work on the project will be required to review the tracking log and update and provide input on content to ensure that all parties agree on the log of materials that must be sourced domestically prior to construction activities. Once this agreement is reached and project activities begin, the Contractors and Coalition will work closely to ensure that all project materials can be sourced domestically in periods that allow project milestones to be reached, thereby avoiding any disruptions to substantial completion dates that may adversely affect the grant period or budget constraints. Given the significant portion of budget intended for equipment and supplies, routine, monthly check-ins with the Contractor and Coalition will be held to ensure that all materials, even those beyond BABA's reach, are being sought and purchased as soon as feasible to avoid project delays. Obtaining certification letters from suppliers for BABA covered materials will be a routine process to ensure that project funds, including those from the CPRG Program, expended on materials and supplies satisfy all compliance requirements. Contractors will submit invoices that specify each material purchased and will be accompanied with material receipts so that the Coalition may verify the accuracy of costs.

The remaining 13.87% of the project's budget is allocated to Contractual work at \$27,229,000. The Coalition will approach the expenditure of funds allocated to the contractors with diligent tracking measures that monitor monthly costs associated with contractor invoices and that contractor budget consumption matches expectations. Essential to compliantly selecting a given contractor are Davis-Bacon prevailing wages. Per the CPRG Program Notice of Funding Opportunities, all contractors must pay staff wages not less than those prevailing in the area, as defined by a Davis-Bacon Wage Determination for the county in which work will be performed. The Coalition will proactively ensure that all bid advertisements contain the appropriate Wage Determination and that Contractors' price quotes reflect commensurate pay rates. The Coalition will monitor that contractors are submitting weekly payrolls that demonstrate wages paid and labor classifications represented are compliant. The current budget amounts represented in the Contractual category reflects prevailing pay rate considerations for the Chicago MSA footprint in which work will be performed, avoiding any costly budget adjustments that may have resulted from sudden incorporation of Davis-Bacon pay requirements.

The Coalition has considered all federal compliance requirements stemming from the CPRG Program that may impact project costs and has taken meaningful steps to incorporate anticipated price adjustments in the appropriate budget categories. As the project gets underway, strict tracking measures will be followed to ensure that each budget category is expending funds at an expected pace. Any deviations from planned progress, either from a budget or construction perspective, will be relayed to all relevant parties and strategies will be developed to ensure that the project will be completed on time and on budget. Again, Fox Metro has tremendous experience in delivering projects under the constraints of federal funding requirements and will tap into the strategies that enabled previous projects to be successful.

Costs for all supplies to perform routine operating and maintenance (O&M) procedures required by the Project will be provided through In-Kind contributions. These supplies, which are otherwise not referenced in Budget Table 7.1, include: the cost of running the system, gas conditioning activities, quarterly gas sampling, electricity to run the equipment, annual maintenance, interconnection fees associated with local utilities and trucking contracts. The Coalition expects these supplies to carry a total cost across all five project years of \$11,992,000. A budget table for In-Kind Costs is available in the Budget Appendix.

7.3 REASONABLENESS OF COST

The budget structure in Table 7.1 was crafted after consideration of all anticipated project components, activities, and requirements. As noted previously, the overall budget to successfully implement the Project totals \$196,301,500 over a 5-year period, thus meeting the time constraints required by the CPRG Program. Each component of the budget is summarized below. An itemized budget table and an in-depth review of each component is available in the Budget Appendix.

Personnel: The project will employ one Project Administer as a full-time employee (FTE) at an annual salary of \$100,000, with approximate wage adjustments of 5% for each project year.

Fringe Benefits: The FTE Project Administer will receive fringe benefits of 17% of the annual salary.

Travel: The Coalition anticipates sending the Project Administer to an annual conference.

Equipment: Equipment claims the largest allocation of budget at \$168,411,000 spanning 12 categories:

- ▶ Gas conditioning equipment
- ▶ Regional decant system equipment
- ▶ Installation of equipment
- ▶ Structure modifications
- ▶ Mechanical & electrical components
- ▶ Sitework
- ▶ Contractor general conditions
- ▶ Local utility interconnect facilities and gas pipeline
- ▶ Trailers for trucking
- ▶ BABA compliance
- ▶ Contingencies

Contractual: A budget of \$27,229,000 has been established to cover costs related to Contractors employed to design the Project, as well as for public outreach and contract RNG hauling.

- ▶ Engineering design
- ▶ Engineering construction
- ▶ Public outreach consultant

8.0 CONCLUSION

The Chicagoland Methane Recapture Project provides a unique opportunity to invest in improved resource circularity and emissions reduction in America's third largest city. Wastewater treatment facilities and landfills are anchor institutions that are responsible for managing an extraordinary quantity of end-of-life material resources, but municipalities on their own are unable to fund expansive improvement projects that would increase their ability to capture value from this waste. Too often, insufficient funds must be directed toward routine maintenance and infrastructure repair. The Chicagoland Methane Recapture Project is a shovel-ready systems improvement project that would enhance the ability of an entire network of waste treatment facilities to eliminate biogas emissions and produce renewable fuel from naturally occurring organic decomposition.

After a one-time award of funding for initial capital investment needs, the project will generate revenue from the sale of renewable natural gas to fund operating costs in perpetuity, positioning the project to be financially self-sustaining. The creation of a system of biogas treatment facilities in the Chicago MSA presents the opportunity for future scalability of biogas collection from additional organic feedstocks like food waste, yard trimmings, and agricultural waste. This will only increase the return on investment through economies of scale. Once in place, the proposed biogas conditioning facilities will represent an entirely new and innovative system of energy production infrastructure that can be utilized by the region, reducing the demand for fossil fuels and eliminating emissions from waste treatment in the process.