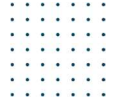


# Notice of Draft Format



This document is currently a work in progress and should only be considered to this extent. Various sections may be labeled in the report as, “(WITHHELD),” signifying future drafting not available at the time of issuance.

Please note that content graphics and formatting are preliminary and do NOT reflect final graphs, charts, and overall graphic design reserved for final drafting.

## Work in Progress

Ongoing collaboration with County departments is in progress and will continue through 1<sup>st</sup> Quarter of 2025. The following tasks will be completed to ensure buy-in with County stakeholders and alignment with County-wide and department level goals.

- Hold a minimum of one discussion session with leadership and Sustainability Task Force members representing each of the 10 County operating departments.
- Accurately capture and estimate climate impacts of recently completed, in progress or upcoming projects
- Develop additional projects and strategies to drive down County-wide and department-specific emissions.
- Define progress milestones for each department.
- Define a roadmap that will allow each department to meet their progress milestones and contribute County-wide goal of carbon neutrality by 2050.
- Review projects, strategies, roadmaps, and milestones with each department and refine as necessary.
- Inform, consult, involve, collaborate, and share leadership with community members on the Climate Action 2050 Plan
- Develop Project Charters for projects that may be referenced by various departments for future capital requests.

*Any questions or requests for clarification should be directed to Grant Helle at [grant.helle@milwaukeecountywi.gov](mailto:grant.helle@milwaukeecountywi.gov)*





# Milwaukee County Draft Climate Action 2050 Plan

Milwaukee, Wisconsin  
December 2024

TOGETHER, BUILDING A THRIVING PLANET





# Contents

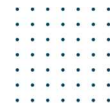


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## SECTION 1

# Project Background

# Executive Summary



## Climate Action History

Milwaukee County (“the County”) has a long history of leadership in sustainability. Since 2007, the County has launched several initiatives to address climate change, including<sup>1</sup>:

- Creating an environmental and conservation “Green Print” initiative for County government operations (File No. 07-111).
- Converting the County’s fleet of transit buses to ultra-low sulfur diesel fuel, increasing fuel economy and reducing GHG emissions.
- Adopting a goal to reduce energy use in County government buildings 20% versus 2014.
- Participating in the City of Milwaukee’s Better Building Challenge program (two County government buildings enrolled, representing over 400,000 square feet).
- Establishing a Property Assessed Clean Energy (PACE) program that enables commercial property owners in Milwaukee County to obtain affordable, long-term loans for energy efficiency, renewable energy and water conservation improvements – at no cost to taxpayers.
- Establishing that County government will support the principles and GHG emissions reduction targets of the Paris Climate Agreement (File No. 17-506) to keep global temperature increases below 2°C (3.8°F).
- Co-creating the Milwaukee City-County Joint Task Force on Climate and Economic Equity to develop a roadmap of governmental actions to accomplish community greenhouse gas reduction goals (File No. 19-582).

**In 2021, the Milwaukee County Board committed Milwaukee County to achieve 50% carbon reduction in Milwaukee County facilities and operations by 2030 and carbon neutrality by 2050<sup>2</sup>.** Since that time, the Office of Sustainability has formed a Sustainability Task Force (STF), engaged the local community, and worked with all County operating departments to develop the Milwaukee County Climate Action Strategic Plan. This Strategic Plan was based on the Framework and Guiding Principles established by the STF in 2021 and is aligned with the Milwaukee County Vision and strategic focus areas.

## GUIDING PRINCIPLES

Milwaukee County has identified 3 Guiding Principles through its Climate Action 2050 Plan (CA50) Framework – Create Intentional Inclusion, Bridge the Gap, and Invest in Equity<sup>3</sup>. These principles serve as the foundation for resulting CA50 projects. Each principle is accompanied by specific sub-principles that specify alignment of future actions with CA50’s intent. These principles are designed to foster consistency, direction, and accountability in project planning and execution. Adhering to these principles ensures all initiatives contribute meaningfully to Milwaukee County’s sustainability vision, and supports long-term environmental, social, and economic success.

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<sup>1</sup> 20-496 report

<sup>2</sup> 21-389

<sup>3</sup> Climate Action 2050 Plan Updates, Sept 16, 2024



# Executive Summary

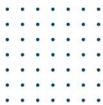


Figure 1

The graphic below, developed by the Office of Sustainability, details how county department strategic principles are aligned with climate action principles and strategies.

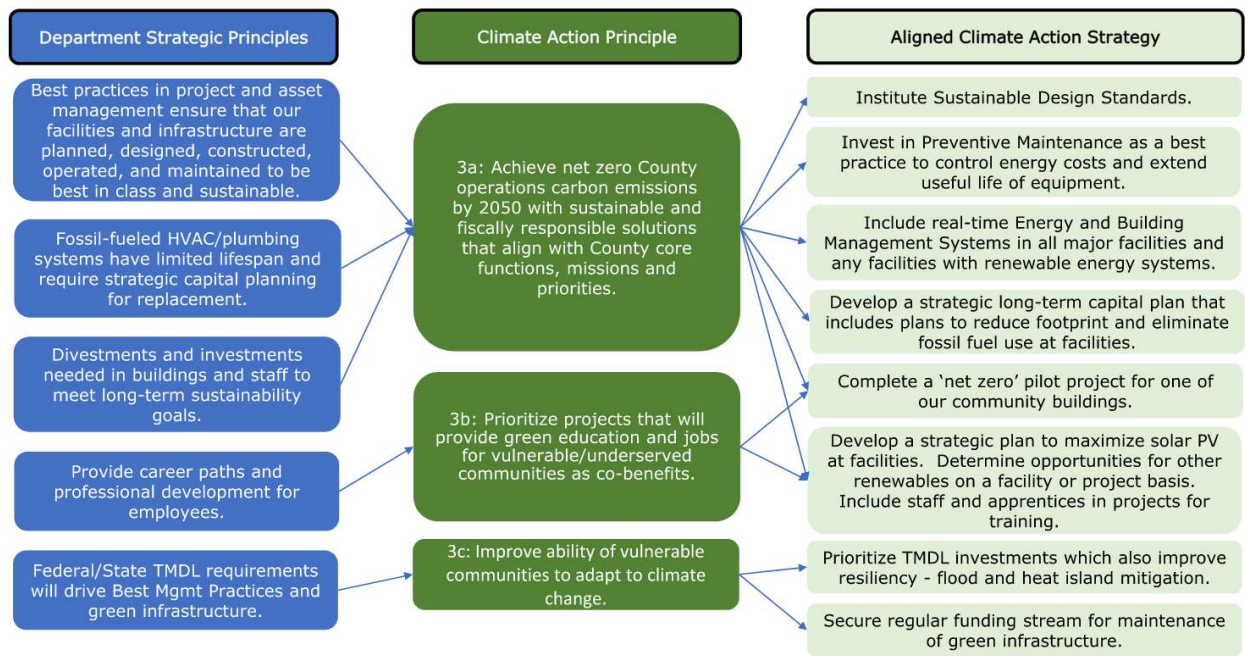
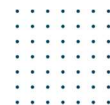


Figure 2

# Executive Summary



## Climate Action Planning Process

The next step of the process, achieved by the following report, was to fully develop the County's climate action plan and roadmap to carbon neutrality by 2050. This plan includes specific projects, complete with costs, emissions reductions, and return on investment, that flow out of each department's Climate Action 2050 (CA50) strategy. The McKinstry project team worked closely with ten county departments, shown below, to develop a carbon reduction roadmap specific to their unique needs and opportunities.

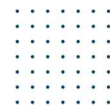
Department
Department of Administrative Services (DAS)
Office of Emergency Management (OEM)
Office of Equity (OOE)
Department of Health and Human Services (DHHS)
Community Reintegration Center (CRC)
Parks Department (Parks)
Office of Strategy, Budget, Performance (SBP)
Milwaukee County Zoo (Zoo)
Department of Transportation (MCDOT)
Transit System (MCTS)

The McKinstry team was tasked with developing a roadmap that will guide each of the ten county departments towards their goals. This roadmap is a deeply collaborative process, requiring significant coordination with departments to understand their unique needs and develop relevant decarbonization projects.

The development process was broken down into five key tasks:

- 1) **Data Collection and Analysis** – Review and synthesize a wide variety of county information, including utility and fleet data, capital improvement plans, resiliency assessments, emissions inventories, and many other documents.
- 2) **Project Development** – Working with each county department, the McKinstry team developed a high-level list of projects, with the goal to drive action towards the overall county goals.
- 3) **Community Engagement** – In collaboration with the office of sustainability, a series of meetings were held with various community groups to collect feedback and inform the planning effort.
- 4) **Climate Action Plan Report** – Deliver a final report, consisting of ten individual CAPs for each department and an overall CAP that synthesizes the findings into a single document.
- 5) **Report to Board** – Present the findings to the county board for approval.

# Executive Summary



## APPROACH TO DECARBONIZATION

Achieving carbon neutrality is an ambitious goal. Without thinking carefully about the process, achieving that goal can be extremely difficult and more costly than necessary. McKinstry has a proven track record of moving its clients towards their sustainability goals, and this success is based on following a few key approaches. These basic strategies closely align with the approach already laid out by Milwaukee County in their existing CA50 efforts<sup>4</sup>.

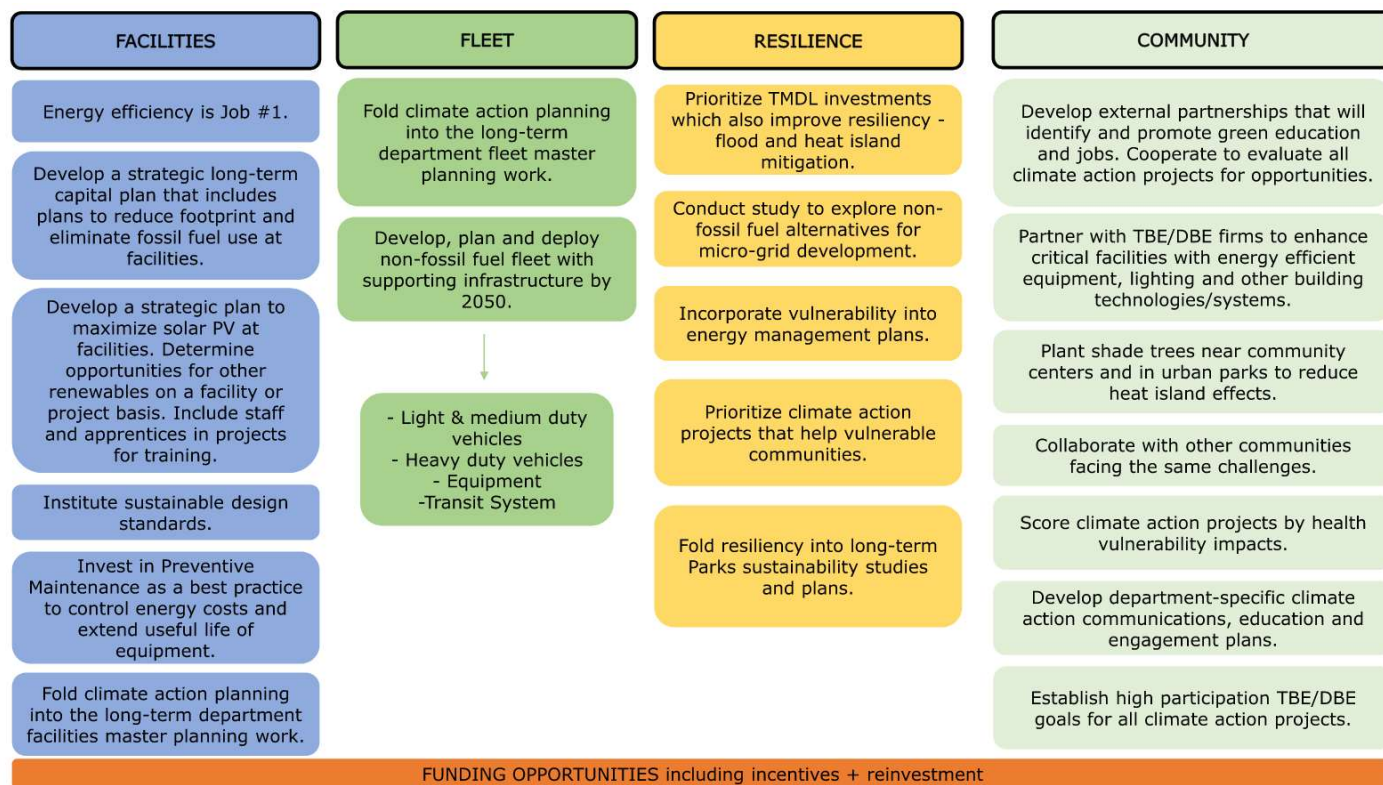


Figure 3

## IMPACTFUL

The carbon neutrality goal exists to address the harmful impacts of climate change. Therefore, the County should prioritize solutions that have the greatest mitigation of climate impacts. As noted in the emission reduction hierarchy below, this means starting with avoiding new sources of emissions first and relying on purchased carbon offsets as a last option.

## ACTIONABLE

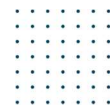
Before recommending projects, it is imperative to understand fully the operations and constraints of County facilities. This ensures feasibility of projects and accurate cost estimates.

Avoid relying on future undeveloped technologies to achieve the goal, but rather develop a plan that is based the “state of the shelf”, meaning technologies and solutions that are currently available. New

<sup>4</sup> Climate Action 2050 Plan Updates, Sept 16, 2024



# Executive Summary



technologies should be evaluated and incorporated into the Plan where appropriate, but these uncertain solutions should not be the foundation of the County's efforts.

## PRAGMATIC

A plan that is too costly or difficult to achieve has no impact. Therefore, it is critical to find solutions that minimize initial cost and maximizes cost savings while addressing other county needs.

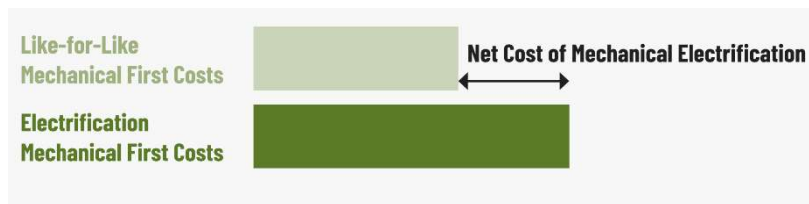


Figure 4

- One key strategy to minimize initial cost is to align decarbonization upgrades with end-of-life equipment replacements, such as HVAC equipment, vehicles, etc. In addition to maximizing the useful life of existing investments, this approach minimizes the cost premium of decarbonization to only slightly incremental of like-for-like replacements.
- To optimize the cost-benefit of decarbonization, “hybrid” implementation can be an attractive option. This approach right-sizes systems to obtain most of the carbon reduction benefits while minimizing cost. The remaining carbon emissions can be addressed at a future date or through other means.

The approach outlined above helps guide the development of the CAP. However, when it comes to implementing decarbonization projects, there are many different pathways available to achieve the same goal. Shown below is a graphic detailing a hierarchy for decarbonization efforts, where the most impactful projects are prioritized first, along with further explanation and examples of section.

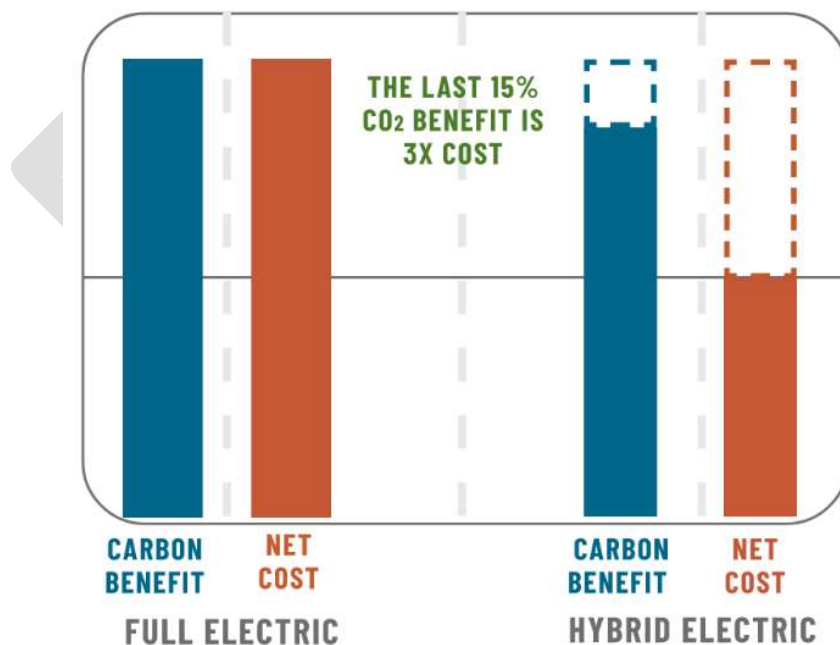


Figure 5

# Executive Summary

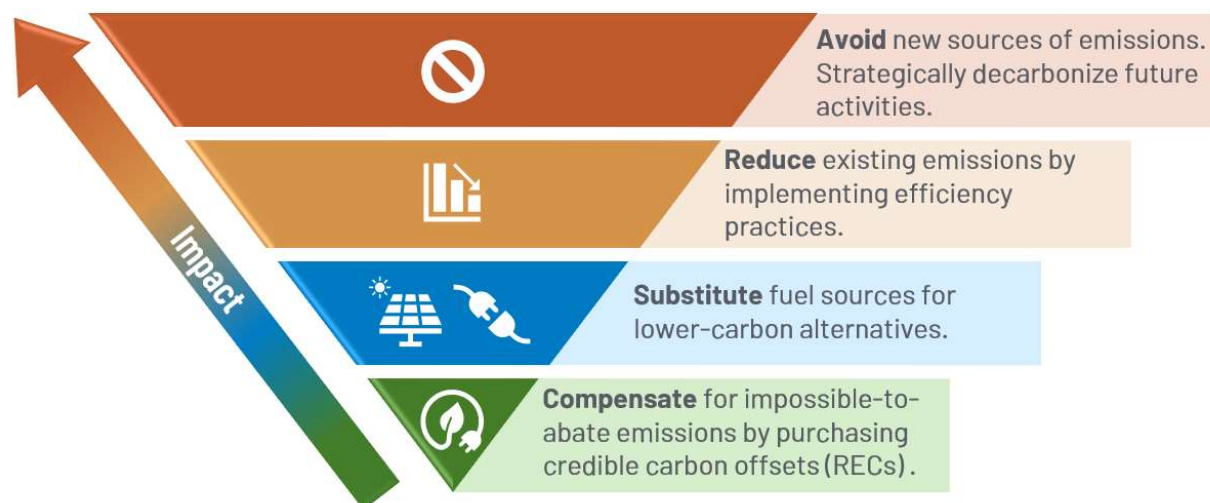


Figure 6

## AVOID

Prevent new emissions through intentional construction planning and purchasing.

- Renovate existing buildings instead of constructing new.
- Where additional capacity exists, consolidate buildings to reduce overall footprint.
- Maximize utilization of existing vehicle and transit fleet to minimize purchasing of new vehicles

## REDUCE

Optimize and upgrade existing equipment and facilities to increase efficiency and reduce operational carbon; this has the added benefit of decreasing peak heating/cooling loads, resulting in reduced costs for replacement systems and renewable energy.

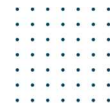
- High efficiency building envelopes to minimize heat gain/loss.
- High performing equipment and optimized operation of building systems, such as heating, cooling, ventilation, and lighting
- Efficient vehicles with high fuel efficiency or hybrid technology

## SUBSTITUTE

Replace greenhouse gas (GHG)-emitting equipment with alternatives that utilize carbon-free-compatible fuel sources. This process is known as “electrification” when fossil-fuel burning equipment is replaced with electric powered systems.

- **Space and Domestic Hot Water Heating** – Replace gas-fired systems with electric heat pumps.
- **Cooking** – Retrofit natural gas-fueled cooking systems with electric induction alternatives.

# Executive Summary



- **Vehicles** – Replace gasoline or diesel-fueled vehicles with clean alternatives, such as vehicles fueled by electricity, renewable natural gas, or green hydrogen.
- **Electricity Supply** – Reduce electricity generation from fossil-fuel sources, such as natural gas or coal, by switching to carbon-free alternatives such as solar, wind, hydro, or nuclear. This can be either on-site renewable energy or carbon-free energy purchased offsite.

## COMPENSATE

Address difficult to abate emissions sources, such as emergency back-up power and specialty vehicles and equipment. Care should be taken to ensure impacts are thoroughly vetted, since some offsets on the market have questionable environmental integrity; even third-party certified offsets can have counter-intuitive attributes.

- **Renewable Energy Credits (RECs)** – Certificates that assign the environmental attributes of renewable energy generation to the purchaser. RECs can be purchased from regional or remote generation sources.
- **Carbon Offsets** – Certificates that allow the purchaser to claim carbon reduction impacts for a wide range of activities, such as planting trees, protecting natural areas, reducing waste, and more, to the purchaser.

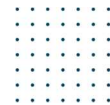
## KEY CO-BENEFITS

While the County is taking responsibility and eliminating its carbon footprint, it isn't in the business of decarbonization – its core mission is to provide governmental services to its residents and visitors. Recognizing this, the CA50 seeks to look broadly at the process of decarbonization and identify additional benefits beyond decarbonization and avoided costs – known as co-benefits.

- **Local Job Creation** – The proposed decarbonization elements will support the local economy with construction and related field work including relationships with Targeted Business Enterprises (TBE) firms. Decarbonization projects can include youth apprenticeships and other training programs, such as those commonly observed in all solar photovoltaic installation and weatherization projects.
- **Community Well-Being** – Transitioning to clean energy improves overall quality of life by reducing noise pollution, improving indoor and outdoor air quality, and creating safer, more comfortable living and working environments for residents and employees.
- **Energy Independence** – Decarbonizing buildings reduces reliance on external energy sources, fostering energy independence and insulating the County from geopolitical tensions or supply disruptions that could drive up costs or compromise security and resiliency.
- **Community Decarbonization Education and Leadership** – The CA50 serves as a way to lead, inspire, and educate its residents and employers to take similar actions in their own lives and workplaces.
- **Avoided Employee Turnover** – The cost of employee turnover (training, lost knowledge, etc.) is significant in any organization. Employees take pride in working for organizations which have



# Executive Summary



integrity in reflecting their values and work towards improving the workplace and community environments.

- **Avoided Carbon Emission Penalties** – As climate change becomes an increasingly current (rather than future) reality, carbon emission penalties are starting to be applied by leading organizations to internal operations, and by governing bodies as part of regulatory mandates. Decarbonization reduces the future risk of such penalties being applied to the County.
- **Future Electric Emergency Backup Power** – Installing onsite solar as proposed for overall renewable power for the County has the added benefit of being combinable with battery energy storage systems (BESS) to provide emergency backup power.
- **Urban Heat Island Reduction** – The Urban Heat Island effect is a prominent increase in temperature in urban areas compared to their rural counterparts, strongly correlated with heat absorption, paving materials, and shade cover. The shade from proposed solar canopies can help reduce urban heat.
- **Tourism: Green Destination** – Embracing sustainability and clean energy initiatives enhances the municipality's appeal as a tourist destination, attracting visitors who prioritize eco-friendly travel options, boosting local businesses and revenues.

## RESILIENCY

In the fight against climate change, we often turn to “Sustainability” – creating a system that can preserve resources without compromising core functions. But how can organizations account for changes in external conditions? While sustainability is defined as building an efficient system, resiliency is focused on building a system that doesn't break – that is, existing systems working through diverse conditions. A resilient system would proactively prepare for threats, continually adapt to change, comfortably absorb impacts, and responsively recover from disruptions.

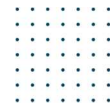
A resilient system is prepared with a variety of responses to a varying range of potential threats. Some volatile factors to consider in resiliency include the environment, the economy, aging infrastructure, and social inequities.

Preparing to insulate against these factors may include energy source and distribution safeguards, coordination and redirection plans for imports/flow of materials, alternative support systems to continue offering critical public services, and cross-departmental and cross-community communication strategies and tools.

A widely recognized framework for resiliency focuses on the 4R's: Robustness, Redundancy, Rapidity, and Resourcefulness:

- **Robustness** – Ability to operate under varying load sizes in stress or demand.
- **Redundancy** – Ability to substitute key factors in the case of maintenance or failure to allow continued consistent performance.
- **Rapidity** – Ability to respond quickly to failure: reducing loss potential and minimizing degradation due to failure.

# Executive Summary



- **Resourcefulness** – Ability to leverage and organize resources in the event of disruption.

Milwaukee County has already begun to outline initiatives for some departments and will continue to hold resiliency as a pillar of future projects. An example of an existing initiative that has been listed by the Office of Emergency Management (OEM) and the Department of Transportation (DOT):

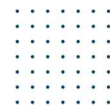
*“In the face of extreme weather events & power outages all critical infrastructure should have renewable energy sources.”*

In this statement, “Robustness” is seen in the scale of total coverage. “Redundancy” is reflected by drawing energy from several energy sources to avoid sole resource dependency. “Rapidity” is considered in redundancy, having backup options in place to reduce response time. “Resourcefulness” is having the foresight to create options for energy service regardless of disruptive events. All future projects should hold resiliency as a key tenant of project development, not separate from efforts to decarbonize County operations.

## PROJECTS OVERVIEW

- **Lighting** – Replace fluorescent tubes with ballast bypass LED tubes to maximize energy and operational efficiency.
- **Retro-Commissioning** – Over time, building uses changes and systems experience maintenance issues. Retro-commissioning is the process optimizing existing building systems to ensure they are operating as efficiently as during initial construction.
- **Controls Upgrades** – Modern digital control systems allow for enhanced control strategies, such as scheduling, temperature setbacks, and demand-based operation, saving energy and reducing carbon emissions.
- **Heat Pumps** – Provide both heating and cooling with all-electric heat pumps. These systems can reach efficiencies exceeding 400% and can be carbon-free when powered with renewable electricity. Geothermal heat pump systems are most efficient and are preferred for large buildings.
- **Building Envelope/Duct Sealing** – Reduce heat loss and air leakage by applying strategies such as replacing windows, increasing roof/wall insulation, weatherstripping doors and windows, and sealing HVAC ductwork leaks.
- **HVAC Upgrades** – Replace outdated HVAC systems with modern alternatives. This includes converting constant flow systems to variable volume, adding variable frequency drives (VFDs) to fans and pumps, and installing high-efficiency motors.
- **Vehicle Fleet Conversion** – Replace existing internal combustion engine vehicles with carbon-free alternatives, such as vehicles fueled by electricity, renewable natural gas, or green hydrogen.

# Executive Summary



- **On-Site Solar** – Install photovoltaic (PV) panels on building roofs and carports to provide renewable energy. These can be coupled with battery systems to increase flexibility and add resiliency. A comprehensive solar feasibility study was completed in 2024<sup>5</sup>.
- **Off-Site Carbon-Free Electricity** – Purchase carbon-free electricity to eliminate carbon emissions associated with county electrical consumption. This can be through a variety of sources, power purchase agreements (PPAs), RECs, carbon offsets, or utility-provided electricity.

In addition to the specific emissions reduction projects listed above, the County is also developing Sustainable Design Guidelines. This will be a critical resource in making sure new construction and renovation projects and new equipment purchases align with the overall county decarbonization goals.

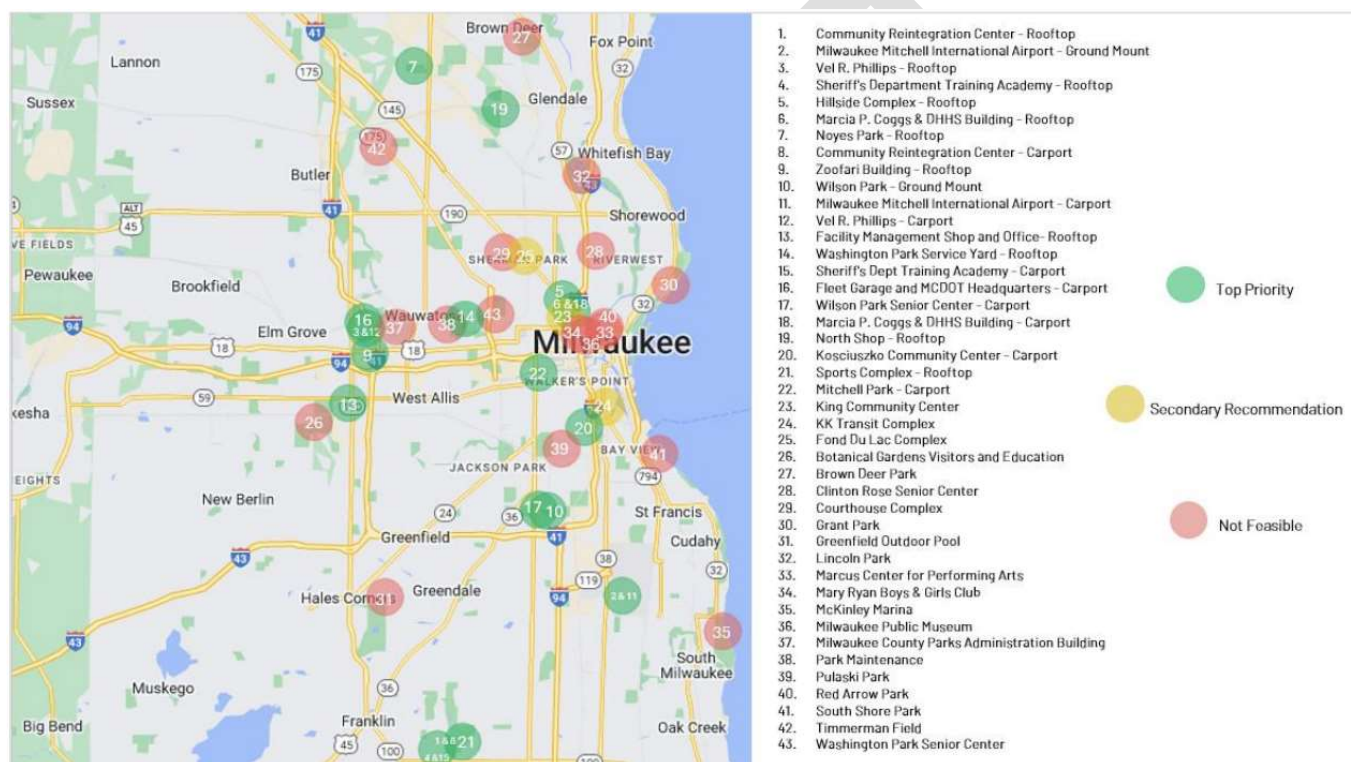
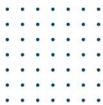


Figure 7

<sup>5</sup> Milwaukee County Solar Photovoltaic Systems, Feasibility Study, Sept 13, 2024



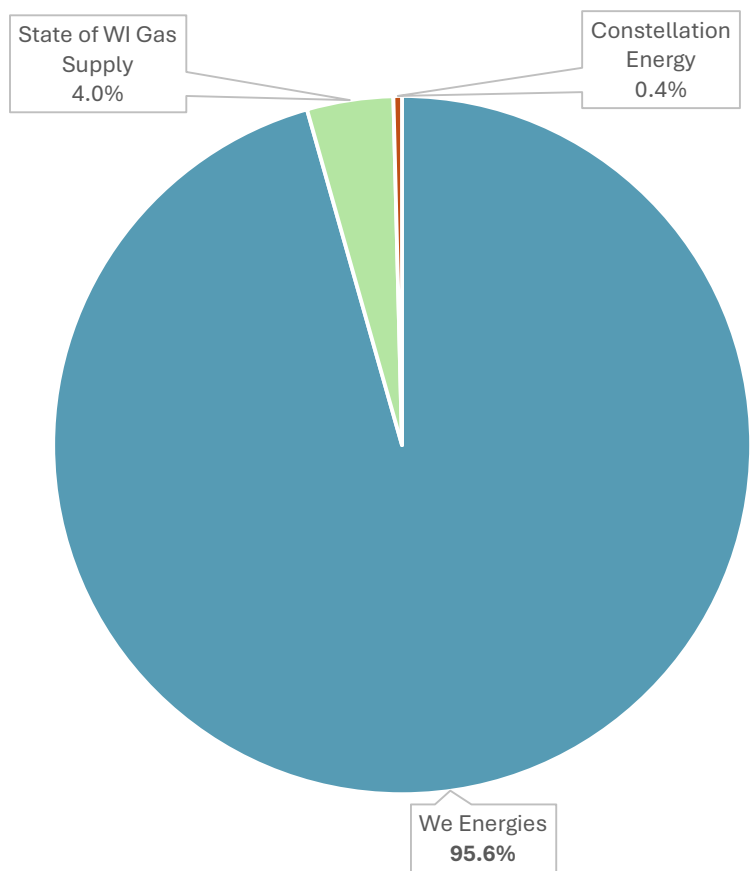


## Utility Goals

### OVERVIEW

The County has active accounts with three utility providers. These providers are We Energies (of WEC Energy Group), Constellation Energy, and the State of WI Gas Supply. We Energies accounted for approximately 96% of 2023 County Utility Costs.

**Utility Providers by % of County Utility Cost 2023**



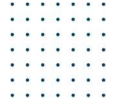
As utilities expand their carbon-free energy sources portfolio- such as investing in solar, wind, and nuclear production- and move away from fossil fuels, purchased electricity will have lower emissions. This is known as “Greening the Grid”. Milwaukee County’s path to carbon neutrality by 2050 is intertwined with the rate of greening the grid.

### WEC ENERGY GROUP EMISSIONS GOALS

WEC Energy Group shares the goal of carbon neutrality by 2050 and have been taking steps to achieve this goal. “Targeted capital investments already have led us to achieve a 45% reduction compared to

# Executive Summary

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2005, even as our business has grown.”<sup>6</sup> Electrifying the County’s buildings gives them the opportunity to take full advantage of this greening of the grid.

## COUNTY UTILITY INDEPENDENCE AND GOALS

In 2023, electricity accounted for approximately 42% of the County emissions. As WEC continues to invest in renewable energy and phasing out fossil fuels, the County has a path to renewables of their own that has been supported by a solar feasibility study conducted with McKinstry.

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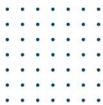
<sup>6</sup> WEC Energy Group Pathway to a Clean Energy Future 2022 Climate Report.

## SECTION 2

# County Baseline GHG Emissions

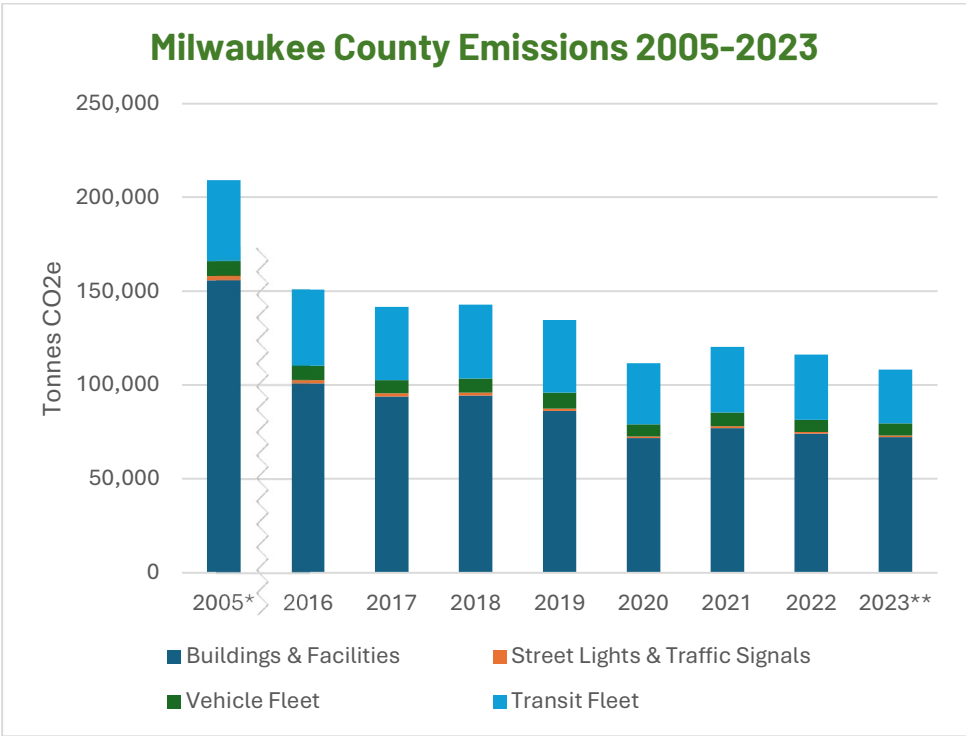


# County Baseline GHG Emissions



## Emissions Reduction Progress to Date

The County has made substantial progress in reducing emissions since 2005, which is the County’s adopted baseline year. The 2023 emissions inventory showed a 45% overall reduction in GHG emissions compared to 2005. Based on this data, the County is well on track to achieve their 50% reduction goal by 2030.



*\*2005 serves as the baseline for Milwaukee County’s Emissions Reduction Goal. Emissions values for years 2005 & 2016–2022 are provided from the County’s ICLEI ClearPath inventories.<sup>7</sup>*

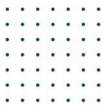
*\*\*2023 Vehicle Fleet data not currently available. Modeled using 2022 Vehicle Fleet data as a placeholder value.*

### SUBSECTIONS IN PROGRESS:

*Emission Reduction Contributing Factors (WITHHELD)*

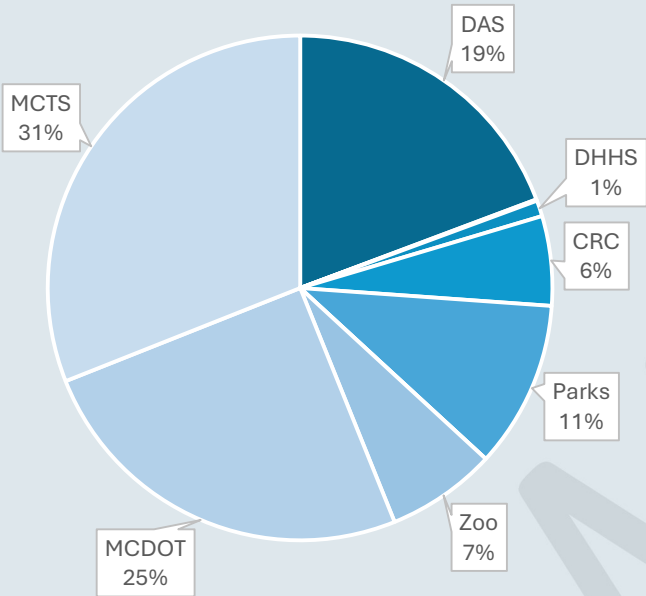
<sup>7</sup> Milwaukee County ICLEI ClearPath Emissions Management Tool.

# County Baseline GHG Emissions



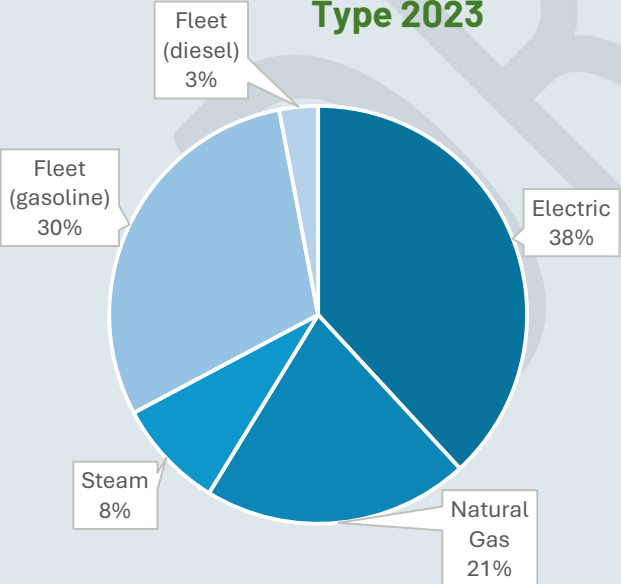
## CURRENT COUNTY GHG SNAPSHOT

### County Emissions by Department

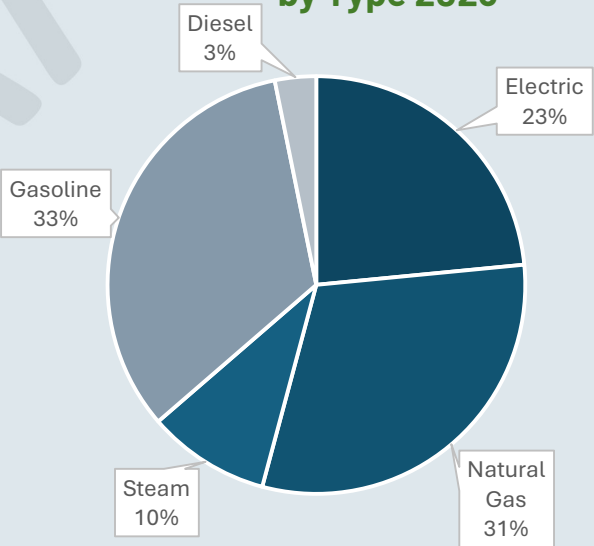


*\*2023 Vehicle Fleet data not currently available. 2022 Vehicle Fleet data included as placeholder value.*  
*\*\*The following departments are omitted from the graph because they do not have any emissions specifically attributed to their operations: OEM, SBP, OOE*

### County Emissions by Energy Type 2023



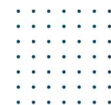
### County Energy Consumption by Type 2023



*\*2023 Vehicle Fleet data not currently available. 2022 Vehicle Fleet data included as placeholder value.*

# County Baseline GHG Emissions

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## SUBSECTIONS IN PROGRESS:

*Future* GHG Emissions Projections (WITHHELD)

*Financial Overview* (WITHHELD)

*Progress* Milestones (WITHHELD)

*Governance and Tracking* (WITHHELD)

*County-wide Project Charters* (WITHHELD)

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## SECTION 3

# **Climate Action Plan Efforts by Department**



# Climate Action Plan Efforts by Department



## Department of Administrative Services Climate Action Plan

### DEPARTMENT BACKGROUND AND GREENHOUSE GAS OVERVIEW

#### Department Overview

The Milwaukee County Department of Administrative Services (DAS) serves a wide variety of functions for the County, ranging from facility and infrastructure management to economic development. DAS encompasses several subdivisions:<sup>8</sup>

- Architecture and Engineering
- IMSD Information Management Services
- Central Business Office
- Office of Economic Inclusion
- Economic Development
- Procurement
- Environmental Services
- Risk Management

#### Facilities Overview

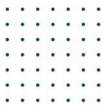
DAS operates 46 facilities, totaling 2,158,761 square feet throughout the County. Facility use types range from Senior Centers to the Milwaukee County Courthouse Complex, reflecting the wide range of DAS operations.

Building Type	# of Buildings	Total sq. ft.	Building Group Average EUI	ASHRAE 100 EUI Goal
Courthouse/Probation Office	4	1,844,713	140.9	72
Medical Office (Diagnostic)	1	53,000	161.5	40
Government Office	1	51,358	86.9	45
Other Public Assembly	5	126,949	95.5	45
Other Public Order and Safety	1	47,000	82.9	95
Nonrefrigerated Warehouse	1	1,850	11.8	22

The Facilities Overview Table includes facilities that register utility information- structures without any utility information are omitted.

<sup>8</sup> <https://county.milwaukee.gov/EN/Administrative-Services>

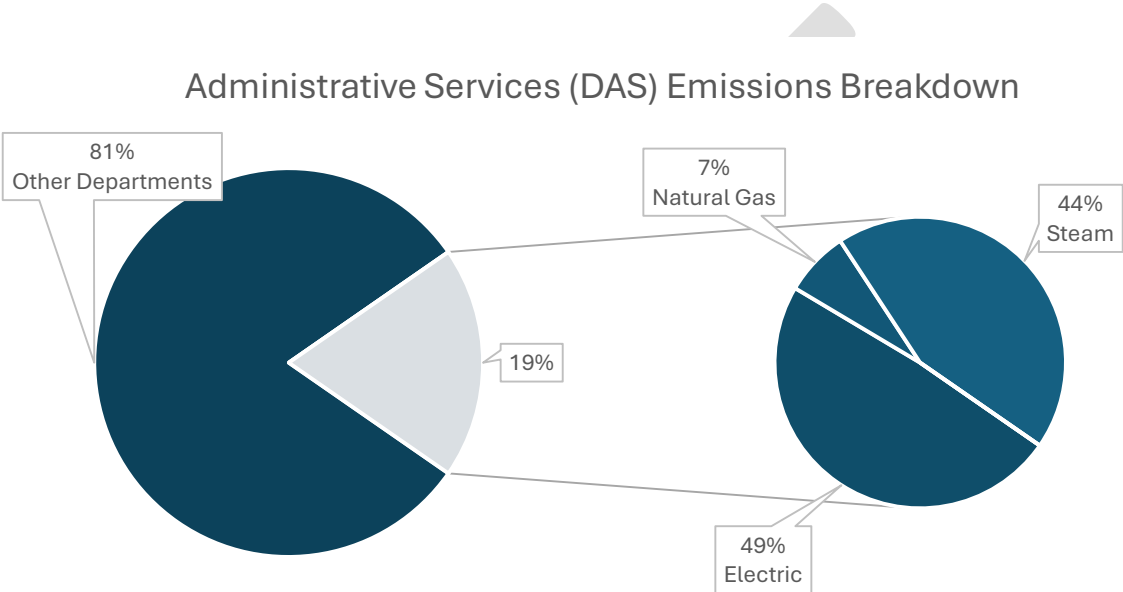
# Climate Action Plan Efforts by Department



*Fleet Overview (WITHHELD)*

## DEPARTMENT GHG INFORMATION

The DAS makes up 19% of the overall County emissions.



*Overview of Recommended Projects (WITHHELD)*

*GHG Reduction Waterfall (WITHHELD)*

*Project Financials (WITHHELD)*

*Project Charters (WITHHELD)*

# Climate Action Plan Efforts by Department



## **Office of Emergency Management** Climate Action Plan

### **DEPARTMENT BACKGROUND AND GREENHOUSE GAS OVERVIEW**

#### *Department Overview*

The Office of Emergency Management is comprised of 4 subdivisions:

- Radio Services Division
- 911 Communications Division
- Emergency Medical Services Division
- Emergency Management Division

These four subdivisions provide a variety of services to the County community, including preparing and warning the public about disasters, work within the community through local emergency planning committee meetings, and other outreach and preparedness programs.<sup>9</sup>

### **FACILITIES OVERVIEW**

The Office of Emergency Management operates 5 Radio facilities in various locations throughout the County. These radio facilities have minimal physical footprint.

#### *Fleet Overview (WITHHELD)*

### **DEPARTMENT GHG INFORMATION**

The Office of Emergency Management makes up less than 1% of the overall County emissions. This is due to a very small building footprint.

#### *Overview of Recommended Projects (WITHHELD)*

#### *GHG Reduction Waterfall (WITHHELD)*

#### *Project Financials (WITHHELD)*

#### *Project Charters (WITHHELD)*

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<sup>9</sup> <https://county.milwaukee.gov/EN/Office-of-Emergency-Management/How-Does-OEM#Workwithcommunities>

# Climate Action Plan Efforts by Department



## Office of Equity Climate Action Plan

### DEPARTMENT BACKGROUND

#### *Department Overview*

The Milwaukee County Office of Equity (OOE), formerly the Office on African American Affairs, brings a higher level of leadership, expertise and accountability to advance the County's strategic goals of creating intentional inclusion, bridging the gap and investing in equity to help fulfill this vision. The OOE is comprised of four subdivisions:

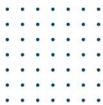
- Health & Racial Equality
- Community Resilience
- Research & Policy
- African American Affairs

### DEPARTMENT ROLE IN CLIMATE ACTION PLAN

OOE has a very small building and fleet footprint leading to miniscule contribution to the County's overall emissions. OOE's involvement in the County Climate Action Planning effort will be tailored towards ensuring equity is prevalent throughout the Climate Action Plan, and keeping a focus on co-benefits of other Departments plans and subsequently achievements of their goals.



# Climate Action Plan Efforts by Department



## Department of Health and Human Services Climate Action Plan

### DEPARTMENT BACKGROUND AND GREENHOUSE GAS OVERVIEW

#### Department Overview

The Department of Health and Human Services supports individuals across all stages of life, from young children to adults and elderly citizens. The department offers services in key areas such as behavioral health, housing assistance, disability support, and veteran-related services.

#### Facilities Overview

The Department of Health and Human Services operates 7 facilities, totaling 261,862 Square Feet throughout the County.

Building Type	# of Buildings	Total SQF	Building Group Average EUI	ASHRAE 100 EUI Goal
Social/ Meeting	6	22,730	65.8	38
Government Office	1	206,300	57.9	45

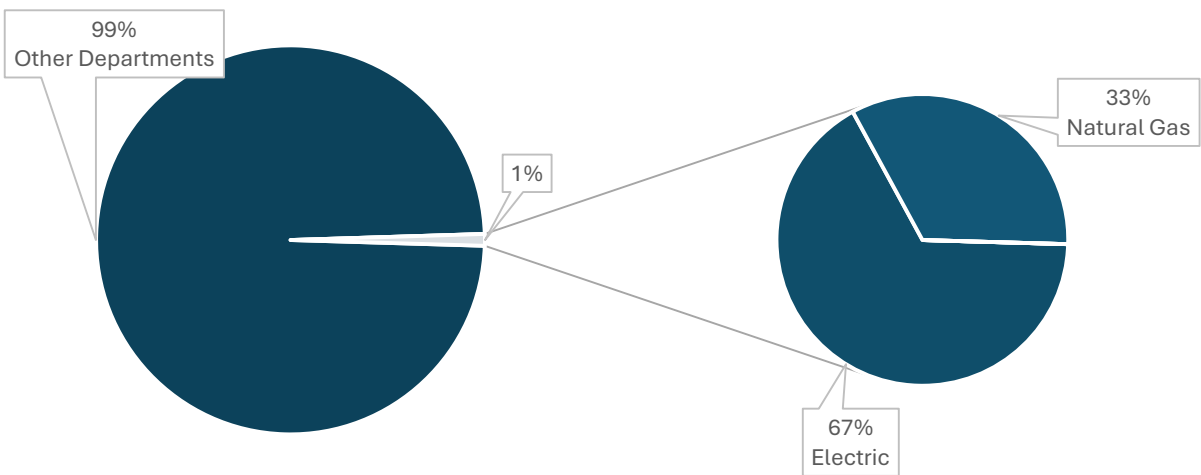
The Facilities Overview Table includes facilities that register utility information- structures without any utility information are omitted.

#### Fleet Overview (WITHHELD)

### DEPARTMENT GHG INFORMATION

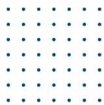
The Department of Health and Human Services makes up 1% of the overall County emissions.

#### Health and Human Services (DHHS) Emissions Breakdown



# Climate Action Plan Efforts by Department

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*Overview of Recommended Projects*(WITHHELD)

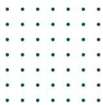
*GHG Reduction Waterfall* (WITHHELD)

*Project Financials* (WITHHELD)

*Project Charters*(WITHHELD)

DRAFT

# Climate Action Plan Efforts by Department



## Community Reintegration Center Climate Action Plan

### DEPARTMENT BACKGROUND AND GREENHOUSE GAS OVERVIEW

#### Department Overview

The Community Reintegration Center (CRC) operates as a secure facility for adult men and women and is the largest county correctional facility in the state. The CRC provides “evidence-based programming that reduces recidivism and prepares residents for their return to the community”.<sup>10</sup>

#### Facilities Overview

The CRC is comprised of several facilities totaling 480,462 Square Feet. These facilities vary from Dormitories to Truck Storage, with a variety of building types in between. The data sourced from EnergyCAP provides total utility values for the entire site, rather than on a per-building basis.

Building Type	# of Buildings	Total sq. ft.	Building Group Average EUI	ASHRAE 100 EUI Goal
Other Public Order and Safety	1*	480,462	194.8	95

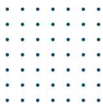
The Facilities Overview Table includes facilities that register utility information- structures without any utility information are omitted.

\*Due to the way energy information is collected for the CRC, all facilities are grouped as one building.

#### Fleet Overview (WITHHELD)

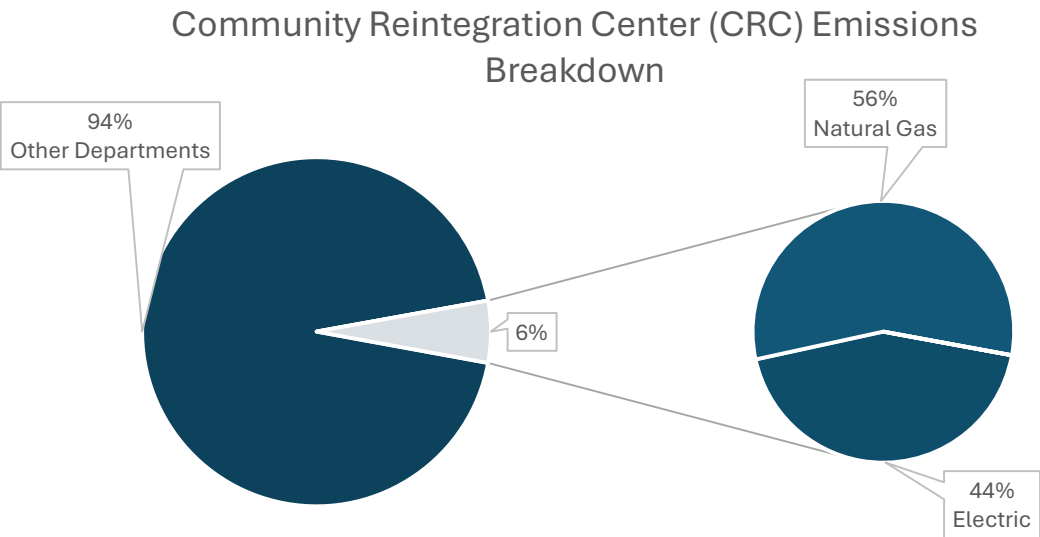
<sup>10</sup> <https://county.milwaukee.gov/EN/Community-Reintegration-Center>

# Climate Action Plan Efforts by Department



## DEPARTMENT GHG INFORMATION

The Community Reintegration Center makes up 6% of the overall County emissions.



*Overview of Recommended Projects (WITHHELD)*  
*GHG Reduction Waterfall (WITHHELD)*  
*Project Financials (WITHHELD)*  
*Project Charters (WITHHELD)*



# Climate Action Plan Efforts by Department



## Parks Climate Action Plan

### DEPARTMENT BACKGROUND AND GREENHOUSE GAS OVERVIEW

#### Department Overview

The Parks Department operates over 150 parks, miles of scenic trails, golf courses, beer gardens, dog parks, beaches, community centers, botanical gardens, and nature trails.<sup>11</sup> Subdivisions of the Parks Department include the Cultural, Artistic & Musical Programming Advisory Council, The Planning and Development Section, and the Conservation Section. These departments provide a wide range of services to the County.

#### Facilities Overview

The Parks Department operates 506 facilities, totaling 2,517,569 Square Feet throughout the County. Of the 2,517,569 Square Feet, 999,106 Square Feet are leased according to the County's EnergyCAP account. These leased facilities, including the Milwaukee Public Museum, are excluded from the County's emissions study.

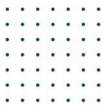
Building Type	# of Buildings	Total SQF	Building Group Average EUI	ASHRAE 100 EUI Goal
Government Office	1	27,131	90.1	45
Recreation	91	1,068,933	114.9	41
Social/Meeting	4	149,393	90.1	38
Vehicle Storage/Maintenance	1	53,153	93.7	43

*The Facilities Overview Table includes facilities that register utility information- structures without any utility information are omitted.*

#### Fleet Overview (WITHHELD)

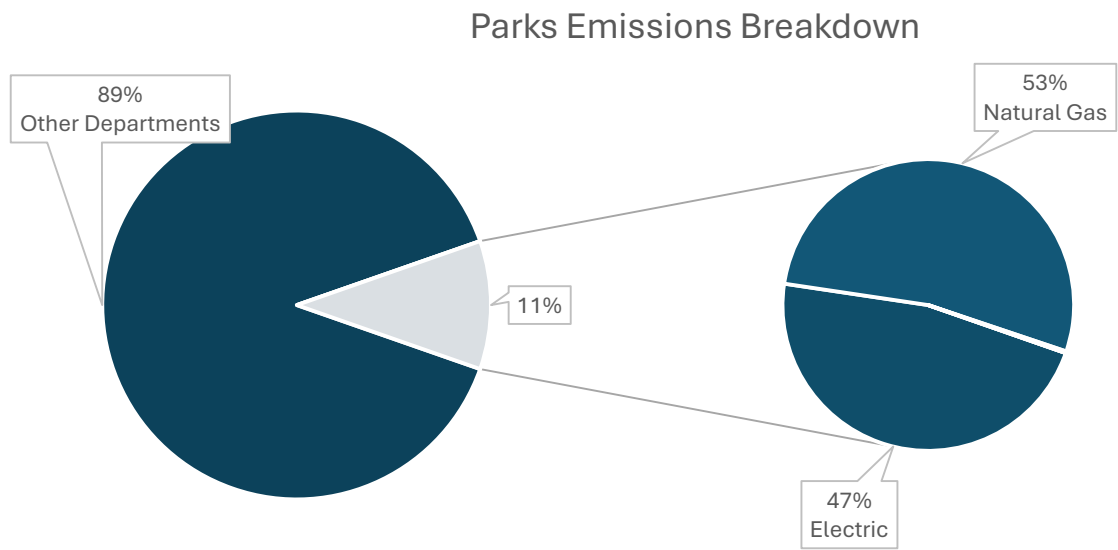
<sup>11</sup> <https://county.milwaukee.gov/EN/Parks>

# Climate Action Plan Efforts by Department



## DEPARTMENT GHG INFORMATION

The Parks Department makes up 11% of the overall County emissions.



- [Overview of Recommended Projects \(WITHHELD\)](#)
- [GHG Reduction Waterfall \(WITHHELD\)](#)
- [Project Financials \(WITHHELD\)](#)
- [Project Charters \(WITHHELD\)](#)

# Climate Action Plan Efforts by Department



## Strategy, Budget and Performance Climate Action Plan

### DEPARTMENT BACKGROUND

#### *Department Overview*

The Office of Strategy, Budget and Performance (SBP) was created to further align strategic planning and budgeting efforts to enable Milwaukee County to achieve a brighter, healthier future. SBP works to strengthen county business practices and strategically align critical resources that advance the mission and improve Milwaukee County's fiscal health.<sup>12</sup> There are three service areas that SBP provides across the organization:

- Strategy
- Budget
- Project Management Office

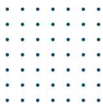
### DEPARTMENT ROLE IN CLIMATE ACTION PLAN

Similar to OOE, SBP has a very small building and fleet footprint leading to miniscule contribution to the County's overall emissions. SBP's involvement in the County Climate Action Planning effort will be tailored towards project development and implementation. SBP will serve as a partner to other departments as they work to implement their Climate Action Plans.

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<sup>12</sup> <https://county.milwaukee.gov/EN/Strategy-Budget-and-Performance>

# Climate Action Plan Efforts by Department



## Zoo Climate Action Plan

### DEPARTMENT BACKGROUND AND GREENHOUSE GAS OVERVIEW

#### Department Overview

The Milwaukee County Zoo aims to inspire public understanding, support, and participation in global conservation of animal species and their environment by creating a unifying bond between our visitors and the living earth.<sup>13</sup>

#### Facilities Overview

The Milwaukee County Zoo operates 33 facilities, totaling 596,909 square feet throughout the County.

Building Type	# of Buildings	Total SQF	Building Group Average EUI	ASHRAE 100 EUI Goal
Other Public Assembly	33	452,889	217.5	45

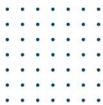
The Facilities Overview Table includes facilities that register utility information- structures without any utility information are omitted.

#### Fleet Overview (WITHHELD)

<sup>13</sup> <https://milwaukeezoo.org/about-us/>

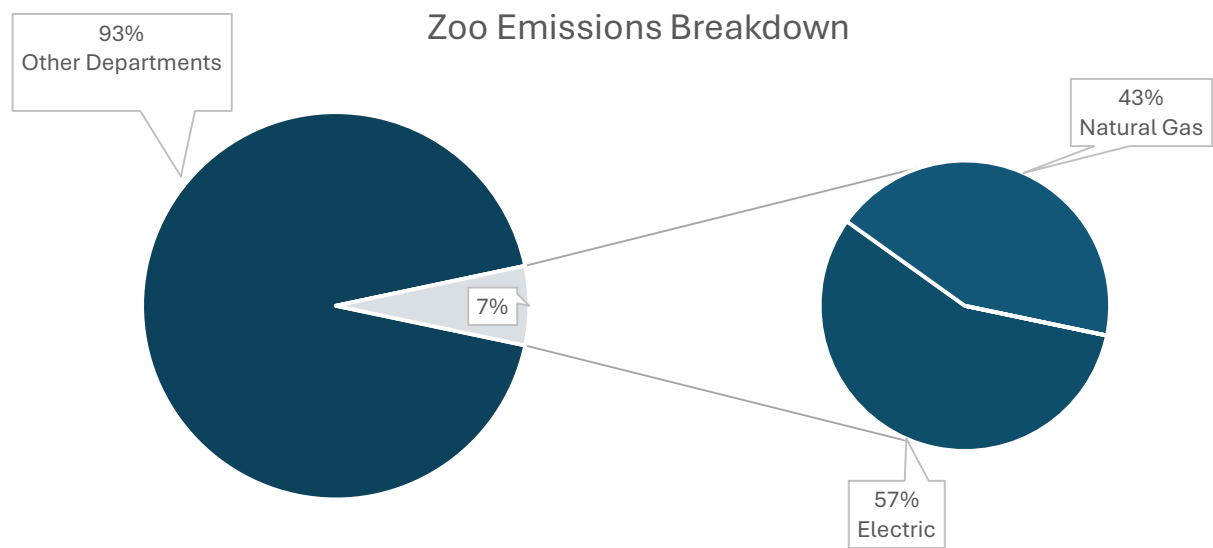


# Climate Action Plan Efforts by Department



## DEPARTMENT GHG INFORMATION

The Milwaukee County Zoo makes up 7% of the overall County emissions.



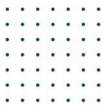
*Overview of Recommended Projects (WITHHELD)*

*GHG Reduction Waterfall (WITHHELD)*

*Project Financials (WITHHELD)*

*Project Charters (WITHHELD)*

# Climate Action Plan Efforts by Department



## Department of Transportation Climate Action Plan

### DEPARTMENT BACKGROUND AND GREENHOUSE GAS OVERVIEW

#### Department Overview

The Milwaukee County Department of Transportation (MCDOT) develops and maintains Milwaukee County's infrastructure needs based on the diverse talent and qualifications of its staff. We have five divisions: Airport, Highway Maintenance, Fleet Management, Transit/Paratransit System and Director's Office. The Director and Deputy Director of Transportation oversee the day-to-day function of the department.<sup>14</sup>

#### Facilities Overview

XX operates XX facilities, totaling XX Square Feet throughout the County.

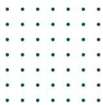
Building Type	# of Buildings	Total SQF	Building Group Average EUI	ASHRAE 100 EUI Goal
Vehicle Service	1	2,695,711	75.4	57
Other Service	5	203,795	39560.3	62

The Facilities Overview Table includes facilities that register utility information- structures without any utility information are omitted.

#### Fleet Overview (WITHHELD)

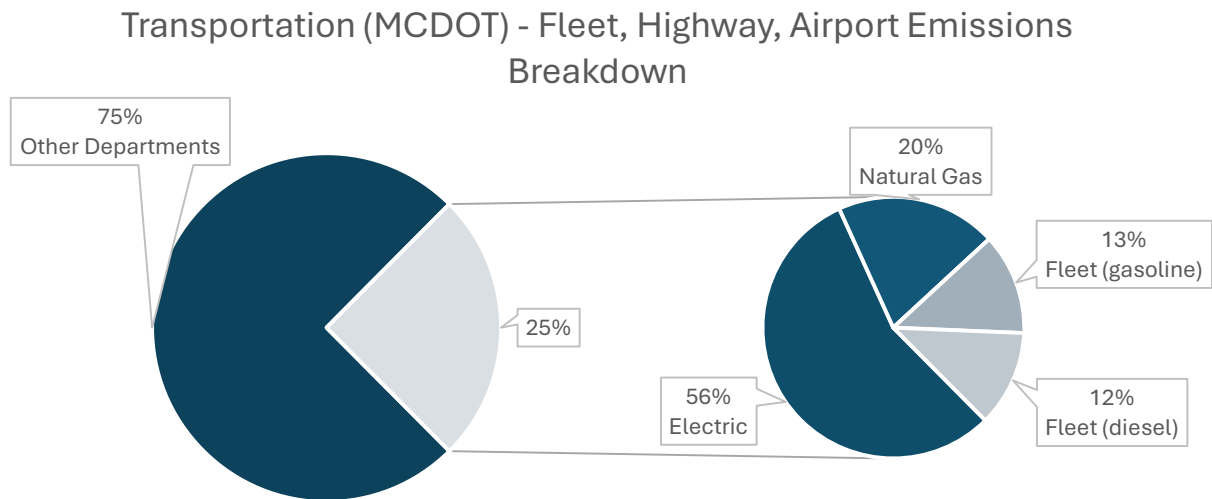
<sup>14</sup> <https://county.milwaukee.gov/EN/Our-County/Departments--Divisions/All-Departments>

# Climate Action Plan Efforts by Department



## DEPARTMENT GHG INFORMATION

The Department of Transportation makes up 25% of the overall County emissions. The below breakdown uses the 2022 vehicle fleet emissions value as 2023 data was not available.



- Overview of Recommended Projects (WITHHELD)
- GHG Reduction Waterfall (WITHHELD)
- Project Financials (WITHHELD)
- Project Charters (WITHHELD)

# Climate Action Plan Efforts by Department



## Transit System Climate Action Plan

### DEPARTMENT BACKGROUND AND GREENHOUSE GAS OVERVIEW

#### Department Overview

With 40 Routes and 3,000 bus stops - MCTS is the best way to get around Milwaukee County. <sup>15</sup>

#### Facilities Overview

Milwaukee County Transportation System operates 19 facilities, totaling 787,739 Square Feet throughout the County.

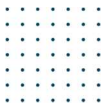
Building Type	# of Buildings	Total sq. ft.	Building Group Average EUI	ASHRAE 100 EUI Goal
Government Office	2	522,556	84.1	45
Vehicle Service	1	170,301	127.7	57
Vehicle Storage	1	94,818	33.9	43
Other Service	1	64	385.3	62

*The Facilities Overview Table includes facilities that register utility information- structures without any utility information are omitted.*

#### Fleet Overview (WITHHELD)

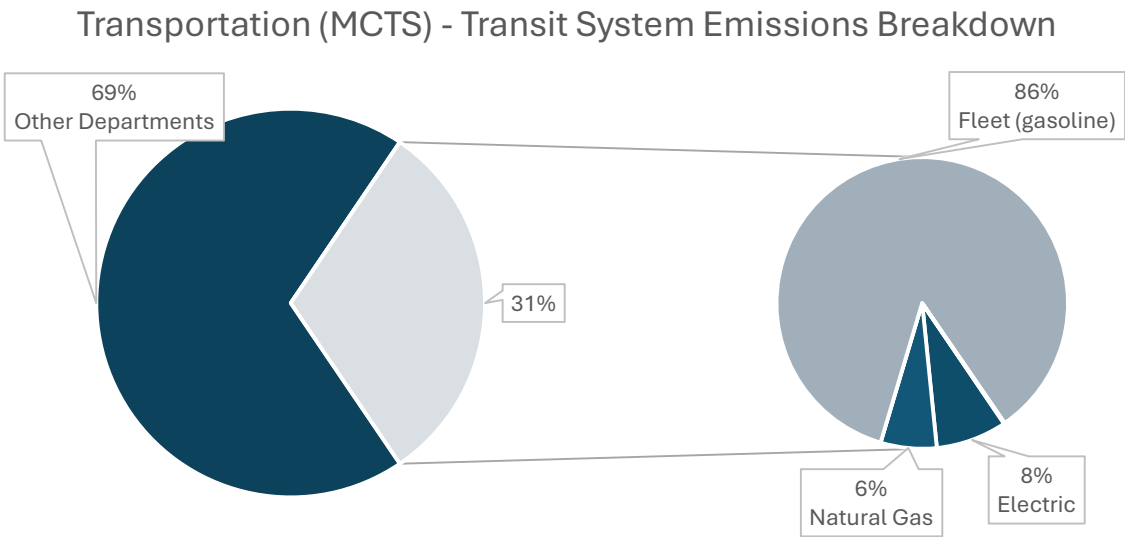
<sup>15</sup> <https://county.milwaukee.gov/EN/Our-County/Departments--Divisions/All-Departments>

# Climate Action Plan Efforts by Department



## DEPARTMENT GHG INFORMATION

The Transit System makes up 31% of the overall County emissions.



- Overview of Recommended Projects (WITHHELD)
- GHG Reduction Waterfall (WITHHELD)
- Project Financials (WITHHELD)
- Project Charters (WITHHELD)



## SECTION 4

# Appendices





## Definitions and/or References

**Green Hydrogen** – [Green Hydrogen] Electrolysis is a promising option for carbon-free hydrogen production from renewable and nuclear resources. Electrolysis is the process of using electricity to split water into hydrogen and oxygen. (US Dept of Energy <https://www.energy.gov/eere/fuelcells/hydrogen-production>)

**Energy Use Intensity (EUI)** - EUI expresses a building's energy use as a function of its size or other characteristics. EUI is calculated by dividing the total energy consumed by the building in one year (measured in kBtu or GJ) by the total gross floor area of the building (measured in square feet or square meters). Building EUI calculated within this report was calculated using a 2-year average whenever possible. (EnergyStar <https://www.energystar.gov/buildings/benchmark/understand-metrics/what-eui>)

**ASHRAE 100 EUIs:** [Link](#)

ASHRAE 100 is a building performance standard reflecting EUIs of Energy Efficient buildings that have had efforts in decarbonization (have updated functions to reduce energy consumption and carbon emissions.) This standard benchmarks buildings with high energy efficiency goals/ decarb efforts.

**Carbon Dioxide Equivalent (CO<sub>2</sub>e)** - A unit of measurement that can be used to compare the emissions of various greenhouse gases based on how long they stay in the atmosphere and how much heat they can trap. For example, over a period of 100 years, 1 pound of methane will trap as much heat as 21 pounds of carbon dioxide. Thus, 1 pound of methane is equal to 21 pounds of carbon dioxide equivalents. (US EPA:

[https://sor.epa.gov/sor\\_internet/registry/termreg/searchandretrieve/termsandacronyms/search.do?search=&term=carbon%20dioxide%20equivalent&matchCriteria=Contains&checkedAcronym=true&checkedTerm=true&hasDefinitions=false](https://sor.epa.gov/sor_internet/registry/termreg/searchandretrieve/termsandacronyms/search.do?search=&term=carbon%20dioxide%20equivalent&matchCriteria=Contains&checkedAcronym=true&checkedTerm=true&hasDefinitions=false))