CLIMATE & EQUITY PLAN

10 Big Ideas To Reduce Greenhouse Gas Pollution, Increase Economic Equity, And Make Milwaukee A Prosperous City For The Long Term

June 2026 Update

City of Milwaukee

MILWAUKEE, AS PART OF PLANET EARTH, FACES GRAVE THREATS FROM CLIMATE CHANGE.

Greenhouse gas emissions from excessive use of fossil fuels are changing the Earth's atmosphere and dangerously warming the planet. In addition, **Milwaukee has pronounced historical racial disparities that could be exacerbated by climate change.** All Milwaukeeans will be affected by climate change, and low-income communities face environmental hazards at a higher rate.

In the face of these threats, Milwaukee will support a new clean energy economy that provides new opportunities for people of color to more fully and equitably participate in the economic life of Milwaukee.

MILWAUKEE HAS THE OPPORTUNITY TO CHART A COURSE.

Downtown Milwaukee from Lakeshore State Park.

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1. Group photo of Task Force. 2. Kayaks on river. Photo Credit: VISIT Milwaukee. 3. Aerial view of Milwaukee. Photo Credit: Steve Bell. 4. Solar workers. 5. Workers making home improvements. 6. Energy efficiency workers.

DOA 10/3/23

People talking while electric vehicle is charging.
Photo Credit: VISIT Mlwaukee.

Women with Bublr bikes.
Photo Credit: VISIT Mlwaukee.

Cavalier Johnson
Mayor, City of Milwaukee

Milwaukee is a city built on the spirit of innovation, resilience, and progress. We believe in creating a community where every person can thrive, where opportunities are within reach, and where no one is left behind. We do not back down in the face of adversity. We continue to move forward, building on our heritage and learning from our past, to ensure Milwaukee shines as a beacon of hope, inclusivity, and boundless potential for generations to come.

A rapidly warming planet and changing climate present a new set of challenges for Milwaukee. How we respond to these challenges will shape the future of our city. Through a focus on attracting family-supporting green jobs of the future, creating resilient neighborhoods and modern transportation networks – as well as ensuring our city uplifts those who bear the brunt of the impacts of climate change – my administration is committed to addressing this crisis in a way that promotes growth.

We must be clear-eyed about the damage climate change is creating, and will continue to create, in Milwaukee. Industry that put Milwaukee on the map has polluted our land and overheated our planet, threatening our city with more frequent flooding and extreme heat. The car-centric transportation system of the last century has devastated many neighborhoods, from Borchert Field to Bronzeville. Prolonged disinvestment has left many of our homes poorly positioned to shield families from extreme weather events. All of these impacts have been felt most severely by our residents of color. As we look ahead to the Milwaukee of the future, we must seize the opportunity to address these wrongs.

Our response to these challenges is an important part of my vision to grow Milwaukee's economy and population to one million people. We are the economic engine of our state, and through an equity-driven approach to the changing climate, we can keep Milwaukee as a hub for the jobs of the future and the best place in the country to raise a family.

I am proud to present Milwaukee's Climate and Equity Plan and its 10 Big Ideas. The plan is the result of over three years of community engagement and recommendations from both residents and leaders in my administration. Milwaukee responds to challenges, and we will work tirelessly to ensure our city is ready for the future.

Sincerely,

Cavalier Johnson
Mayor

Office of the Mayor • City Hall • 200 East Wells Street • Milwaukee, Wisconsin 53202
(414) 286-2200 • fax (414) 286-3191 • mayor@milwaukee.gov

EXECUTIVE SUMMARY
CLIMATE CRISIS

The Climate and Equity Plan provides the vision and foundation for climate action in Milwaukee. The Plan will help accelerate existing climate action in Milwaukee and inform development of new initiatives, all with racial and economic equity in mind. The plan is the direct outgrowth of over three years of public discussions and planning through the City-County Taskforce on Climate and Economic Equity (CC Files 190445 & 191923).

The plan has two primary objectives:

1. Reduce community greenhouse gas emissions

45% by 2030

achieve net zero emissions by 2050

2. Improve racial and economic equity by

creating green jobs that pay **$40,000** and recruiting people from economically distressed neighborhoods

To achieve these goals, this plan outlines 10 Big Ideas for Action.

These strategies can be achieved in collaboration among government agencies, businesses, community-based organizations and other partners. The plan is intended to be financed primarily from new federal resources including the Inflation Reduction Act.

SUMMARY OF THE 10 BIG IDEAS

 1	**GREEN JOBS ACCELERATOR**	Creating clear pathways to employ more people from economically distressed neighborhoods in family-supporting green jobs. This includes public outreach, coordination with existing training providers, clear career ladders from entry-level employment to progressively higher skills, and public benefits agreements on government-funded projects.
 2	**HEALTHY HOME ENERGY UPGRADES**	Making weatherization and renewable energy retrofits more affordable as part of holistic housing improvements that also address lead-based paint and other health hazards.
 3	**NEW NET-ZERO ENERGY HOMES**	Building healthy, affordable, net-zero energy homes on Milwaukee's scattered vacant lots. The project envisions supporting a new factory in Milwaukee that constructs modular housing components year-round to both reduce the cost of new home construction and restore manufacturing job opportunities.
 4	**COMMERCIAL BUILDING ENERGY BENCHMARKING + BUILDING PERFORMANCE STANDARDS**	Requiring large commercial building owners to annually track and report on their energy use and develop longer-term building performance standards to gradually reduce greenhouse gas emissions from commercial buildings.
 5	**PEOPLE CENTERED TRANSPORTATION AND URBAN DESIGN**	Helping people drive less by improving and expanding city-wide public and active transportation options and creating thriving communities where people live, work, and play through transit-oriented development.
 6	**ELECTRIFY TRANSPORTATION**	Building a network of publicly-accessible electric vehicle (EV) charging stations, increasing EV adoption rates through public outreach, and transitioning municipal fleets to EVs, hybrids, and other low-emissions vehicles.
 7	**GREENING THE ELECTRIC GRID**	Transitioning the electric grid to carbon-free sources of energy through advocacy for better renewable energy policy with state utility regulators, direct purchase of renewable energy from new, utility-scale projects, and expansion of rooftop solar in the City.
 8	**PROTECT AND RESTORE NATURE IN THE CITY**	Protecting existing natural areas and increasing the amount of green space and trees on private and public property through the expansion of the Green and Healthy Schools Program and removal of excess asphalt in commercial parking lots that also contribute to urban heat islands.
 9	**WASTE REDUCTION AND SUSTAINABLE CONSUMPTION**	Redirecting surplus food to feed people and reduce waste through a new FEED partnership, as well as reducing plastic pollution and exploring lower-carbon cement.
 10	**RESILIENCE AMBASSADORS**	Partnering with trusted neighborhood-based organizations to connect underserved communities with available tools and resources to make their homes and neighborhoods more resilient to climate change.

EXECUTIVE SUMMARY

The Climate Crisis

The summer of 2022 may go down in history as the wake-up call to the climate crisis facing Milwaukee and the global community. Temperature records were broken worldwide, drought led to dramatic water shortages and reduced food production, wildfires raged, and flooding washed communities away. The climate change impacts predicted in study after study are harming communities now and will get worse in the future without major action. The scientific consensus is clear: the global climate is changing, human activity is the primary contributor, and society needs to dramatically reduce fossil fuel use to avoid catastrophe.

Image of Milwaukee flooding in 2010.

In the last five years alone, reports from the United Nations Intergovernmental Panel on Climate Change (IPCC), the United States Global Change Research Program, the United Nations Framework Convention on Climate Change, the Wisconsin Initiative on Climate Change Impacts, and countless other reputable entities have all contributed key findings that the planet's climate is drastically changing due primarily to human activity. Since the Industrial Revolution, humans have dramatically increased the burning of fossil fuels like coal, petroleum, and natural gas. These fossil fuels are used to create electricity, heat buildings, power vehicles and equipment, and in all types of industrial processes. The impacts of the changing climate are felt in Milwaukee through extreme storms and flooding, heat waves and urban heat islands, health risks, loss of biodiversity, and more.

Racial and Environmental Justice

Milwaukee is Wisconsin's most racially diverse community. The City's diversity is a source of strength and drives community, creativity, and action. Yet, Milwaukee has unacceptable racial disparities in every economic category including employment, income, homeownership, and energy burden. Milwaukee is an older industrial city that is working to recover from historical practices that resulted in a range of environmental problems, including old homes with poor insulation, lead paint and lead pipes, polluted soil, and other challenges. Deindustrialization, outsourcing, inequitable recruitment and hiring practices, and numerous other effects of racism have resulted in economic conditions similar to those seen during the Great Depression for minority and disadvantaged communities in Milwaukee. As recently as 2019, the University of Wisconsin–Milwaukee researchers found that in the 53206 ZIP code only approximately 50% of working-age adults were employed, more than 20% of employed residents had incomes below the federal poverty level, and the area had an overall poverty level of 42%. [1]

Lead paint chipping from a window.

Following industrial disinvestment of the 1970s and 80s, many Milwaukee neighborhoods of color now contend with concentrated poverty.

With not enough family-supporting jobs, many neighborhoods lack the financial resources to repair, maintain, and sustainably improve their homes. In some areas of the city, historic land use development patterns and exclusionary zoning have led to increased industrial uses in close proximity to residential neighborhoods, most often in communities of color. The City of Milwaukee's own financial constraints also make widespread environmental restoration difficult without support from state, federal, and other partners. Climate change will worsen these inequities and disproportionately impact underserved communities. Environmental justice means that the City and its collaborative partners work to create jobs and improve the environment for residents that have been historically left behind.

Important Federal Investments

The good news is that the U.S. federal government recently made the biggest investments to fight climate change in the country's history. The Infrastructure Investment and Jobs Act and the Inflation Reduction Act begin to provide the resources needed to transition the U.S. energy and transportation sectors to run on clean, renewable energy sources, and to enhance our natural environments to better capture greenhouse gas emissions. To make these transitions a reality across the U.S., millions of more jobs will need to be created. Solving the climate crisis can also help resolve the inequity crisis experienced in Milwaukee and nationwide if these investments are made intentionally. The Milwaukee Climate and Equity Plan prepares the City to take full advantage of these federal investments to improve the community.

Integrating The Comprehensive Plan

This plan is being adopted as an amendment to the City's *Comprehensive Plan*, which serves as the cornerstone for all local land use decisions and provides a framework for policy decisions. The integration of the Climate and Equity Plan adds authority to the content, goals, and actions throughout this document.

City Leadership

The Milwaukee Climate and Equity Plan is the latest effort of the City's work to combat climate change, advance racial equity, and ensure long-term prosperity—work that has made Milwaukee a leading city on climate change in Wisconsin.

Milwaukee City Hall.

In 2017, the City of Milwaukee reaffirmed its intent to adhere to the Paris Agreement, a global plan to counteract climate change and prevent the average global temperature from increasing by two degrees Celsius above pre-industrial levels. The Climate and Equity Plan goal of reducing greenhouse gas emissions 45% from 2018 levels by 2030 and achieving net-zero greenhouse gas emissions by 2050 follows the target set in the IPCC Special Report published in 2019. The targets aim to keep global temperature rise to 1.5 degrees Celsius given the significantly worse climate change impacts anticipated at 2 degrees Celsius of warming versus 1.5 degrees of warming.

A central leader in Milwaukee's climate and equity work has been the **City's Environmental Collaboration Office (ECO),** formed to develop practical and equitable solutions that improve people's lives and the economy while working to protect and restore natural ecosystems. The ECO team has, and continues to, collaborate with the community, develop global partnerships, and manage award-winning programs like the Milwaukee Energy Efficiency Program and Milwaukee Shines Solar Program. ECO also executes the City's *Refresh Milwaukee Sustainability Plan*, adopted in 2013.

Residents biking in Milwaukee. Photo Credit: VISIT Mlwaukee.

THE CLIMATE AND EQUITY PLAN BUILDS FROM THE *REFRESH MILWAUKEE PLAN* AND IS INTENDED TO FURTHER ACCELERATE ACTION AND DEFINE CLEAR GREENHOUSE GAS REDUCTION AND ECONOMIC EQUITY GOALS.

COMMUNITY ENGAGEMENT BY THE NUMBERS

829 PUBLIC SURVEY RESPONSES AND COMMENTS

80 MEMBERS OF TEN WORK GROUP

30+ PUBLIC EVENTS (TO DATE)

3+ YEARS OF ENGAGEMENT

12 CITY-COUNTY TASK FORCE MEMBERS

Overview of Progress:

- The City of Milwaukee implemented **Wisconsin's first Property Assessed Clean Energy (PACE) financing program** for commercial buildings, which has financed $40.4 million in energy efficiency and renewable energy projects since 2013 and been replicated in counties across the state.
- The City has adopted and implemented a ***Green Infrastructure Plan*** to use nature-based solutions for stormwater management.
- The City's Department of Public Works is redesigning its streets as **Complete Streets** to reduce reckless driving and support more bike and pedestrian-friendly development.
- The **Hop streetcar** is a major recent investment in electric transportation.
- The **Department of City Development** is supporting climate and equity action through its planning processes, housing programs, and economic development work.
- The **Department of Compliance and Engagement** improves city services using a compliance framework, fosters reporting as required by ordinance, and strengthens outreach and engagement with city residents and community stakeholders.

*Read more at milwaukee.go/climateaction.

The City-County Task Force on Climate and Economic Equity

In 2019, the City of Milwaukee and Milwaukee County jointly established the City-County Task force on Climate and Economic Equity, sponsored by then Milwaukee County Supervisor, Supreme Moore Omokunde, and then Alderman Ashanti Hamilton (Common Council file #191923). The Task Force issued a Preliminary Report in March 2020. Throughout 2021, the Task Force and its working groups met consistently and publicly to develop thorough recommendations for the 10 Big Ideas.

Photo Credit: Urban Ecology Center.

Working groups included:

1. Greening the Electric Grid
2. Green Buildings (Subgroups: commercial buildings, residential retrofits, and net-zero, new housing)
3. Transportation & Mobility
4. Jobs & Equity
5. Adaptation & Climate Resilience
6. Protect & Restore Nature in the City
7. Waste & Sustainable Consumption
8. Education & Outreach
9. Finance
10. Accountability

These work groups involved many members of the public, including local experts in energy efficiency, transportation, climate resilience, ecosystems, and beyond. The work groups offered many opportunities for stakeholder participation, including regular virtual meetings throughout 2021, video surveys, online surveys, presentations, and events. The Task Force was supported by national experts on climate policy, including the International Council for Local Environmental Initiatives (ICLEI), a recognized partner with local governments to advance sustainability efforts.

ICLEI completed 2018 greenhouse gas emissions Inventories for the City and County of Milwaukee to help identify each community's baseline greenhouse gas emissions. ICLEI also provided analysis and guidance on common greenhouse gas reduction strategies used in other cities. The combination of national experience plus the local perspectives of Task Force members and working group members led to the development of 10 Big Ideas that are the foundation of the Climate and Equity Plan. The Task Force publicly presented their recommendations to the Milwaukee Common Council in March of 2022 and to the Milwaukee County Board in September of 2022.

Each of the 10 Big Ideas provide cross-functional benefits that address climate and equity issues. For example, addressing green buildings not only has the potential to reduce greenhouse gas emissions from the built environment, but can also lower energy burden for low-income residents. Each of the 10 Big Ideas also describes how to increase community resilience by helping residents adapt to a changing climate. The 10 Big Ideas are summarized briefly in Chapter 6 with additional detail and analysis available in the in-depth chapters of the plan.

Community Engagement after the Plan: Our Future Milwaukee Coalition

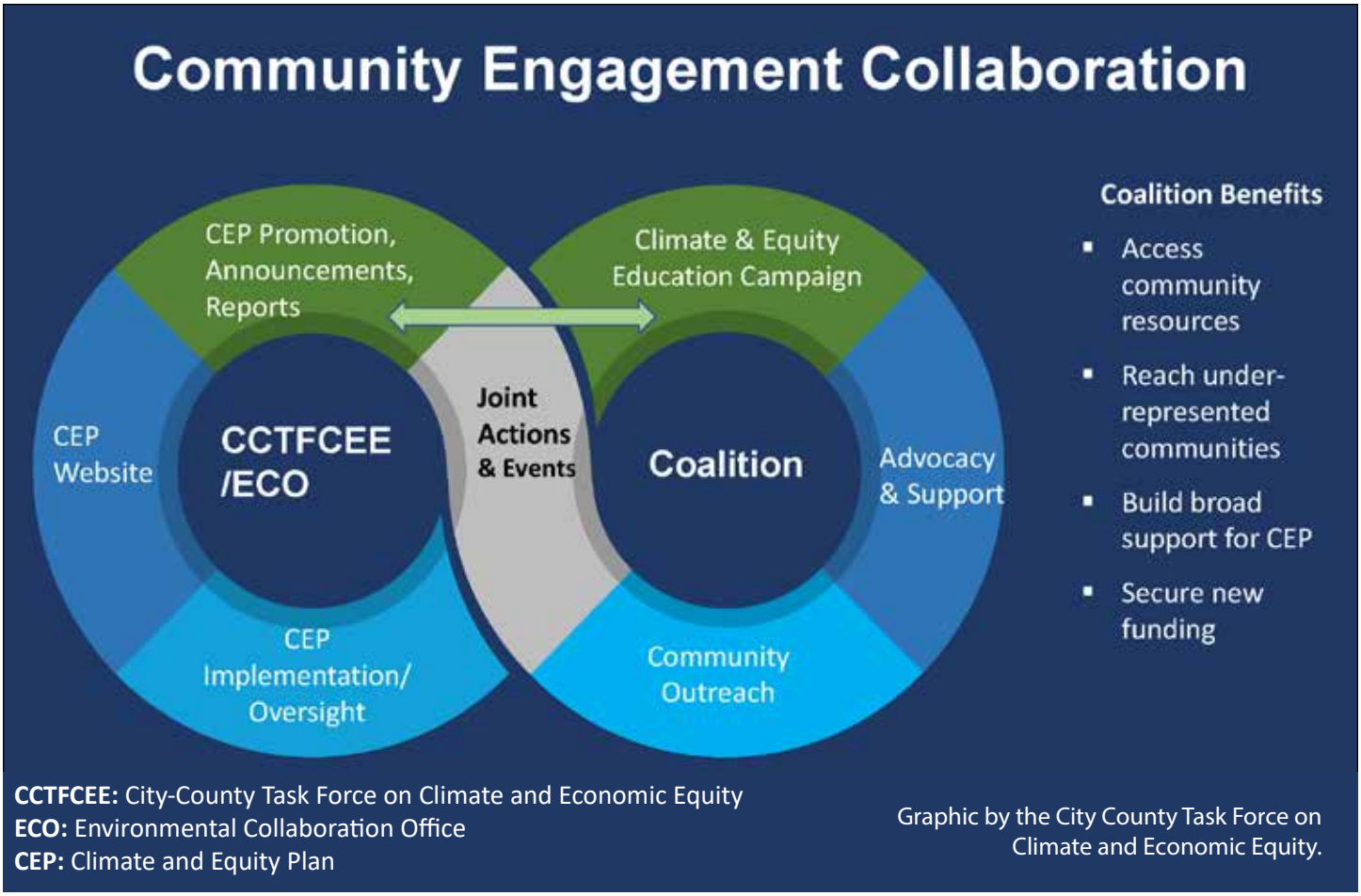
Community members played an important role in the development of Milwaukee's Climate and Equity Plan and will continue to do so after its adoption by the Common Council. To continue the work of promoting the Climate and Equity Plan, and to amplify the voices of Milwaukee residents and others who support its adoption, the Education and Outreach Work Group has launched the Our Future Milwaukee Coalition. This coalition of community organizations and individuals will carry on the work of keeping the public informed about the progress of the Climate and Equity Plan while also advocating for its full and equitable implementation.

Our Future Milwaukee actions may include:

- Developing marketing campaigns about climate change and economic inequity.
- Notifying members of the public about public hearings, local implementation efforts, and opportunities to weigh in on the progress of the plan.

The **Community Engagement Collaboration** diagram on the next page shows the relationship between Our Future Milwaukee, the City-County Task Force, and the City of Milwaukee (represented by ECO).

The Environmental Collaboration Office (ECO) prides itself on being a direct conduit to community collaboration. Through resilience ambassadors, newsletters, the ECO Neighborhoods Initiative, and other venues, ECO and City agencies will continue to issue their own communications to the public, which can be amplified by the Coalition.



Role for Milwaukee County and Municipalities

Milwaukee is part of a regional economy. Fossil fuel emissions and their negative effects are not neatly contained within the city's borders. Commuters and travelers driving in and through Milwaukee everyday contribute to the city's greenhouse gas emissions. Collaboration with neighboring jurisdictions to pursue larger-scale shifts to sustainable and resilient systems can amplify and augment the sustainability and overall health of the natural and built environment across the region.

Since the City of Milwaukee's geographic boundaries are located within Milwaukee County, the city's greenhouse gas emissions represent a portion of Milwaukee County's community emissions. Milwaukee County's geographic boundaries include Milwaukee and 18 additional municipal governments, including Wauwatosa, West Allis, Shorewood, and Greenfield, to name a few. Other relevant units of local government that have roles to play in greenhouse gas reduction, climate adaptation, and equity include Milwaukee Public Schools (MPS), other school districts, and the Milwaukee Metropolitan Sewerage District (MMSD).

Although the City of Milwaukee can take ambitious steps to advance the 10 Big Ideas independently, significant benefits arise from maximizing regional partnerships and cooperation. The City has already initiated effective working relationships with neighboring local and regional jurisdictions, such as with Milwaukee County through the Task Force and other local institutions such as MMSD, MPS, and the University of Wisconsin-Milwaukee.

A Plan Built on Partnerships

The *Climate and Equity Plan* was funded by the City of Milwaukee and focuses on initiatives that the City can implement itself or in partnership, like with Milwaukee Public Schools and the Milwaukee County Transit System. Implementation metrics are primarily focused on greenhouse gas emissions reductions, equity targets, and other performance measures within the City of Milwaukee's geographic limits.

Members of the Task Force at a Community meeting.

The Wisconsin Local Government Climate Coalition on the Milwaukee Central Library green roof.

Milwaukee County communities can work together to concentrate urban growth, which can help reduce overall transportation emissions in Southeastern Wisconsin. The Environmental Collaboration Office stands ready to lead by example, share best practices, and collaborate with other willing communities through the Intergovernmental Cooperation Council (ICC) or other venues.

COLLABORATING ON RECOMMENDATIONS RELATED TO HOUSING, ELECTRIC VEHICLE PLANNING, PEOPLE CENTERED TRANSPORTATION AND URBAN DESIGN, COMMERCIAL BUILDINGS, AND ZONING CAN REDUCE DUPLICATION OF EFFORT, HELP THE REGION ATTRACT MORE FEDERAL GRANTS, AND ENSURE EVERYONE IS IN ALIGNMENT ON CLIMATE ACTION AND RACIAL EQUITY.

The City of Milwaukee has also played a leading role in establishing the **Wisconsin Local Government Climate Coalition**, which provides a forum for communities across Wisconsin to collaborate in advocating for better state policies that can support local climate action. Milwaukee County and Wauwatosa are also current members. Any Wisconsin municipality with climate goals is welcome to join the coalition to further strengthen its efforts and learn about best practices in climate planning.

Opportunities for Statewide and National Collaboration

Climate action is needed across the globe. Milwaukee will have more success by collaborating, learning, and leading through state, national, and international partnerships. Collaboration can maximize limited resources by combining efforts focused on staff education, data collection, operational documentation, long-term plan implementation and monitoring, and other critical functions.

Milwaukee should continue partnerships with:

- **The Better Buildings Challenge :** Milwaukee participates in the Department of Energy's national challenge, which shares best practices on building efficiency and workforce development.

- **Climate Mayors :** Over 400 U.S. mayors work together to strengthen local efforts to reduce greenhouse gas emissions and support efforts for binding federal and global policymaking.
- **Global Covenant of Mayors for Climate & Energy**: The largest coalition of city leaders addressing climate change by pledging to reduce greenhouse gas emissions, tracking progress, and preparing for the impacts of climate change.
- **Wisconsin Local Government Climate Coalition**: Members collaborate on overcoming barriers to decarbonization, accelerating local climate change solutions, and ensuring the benefits of the clean energy economy are distributed to everyone throughout the state.

We're All in This Together

As part of this plan, the City recognizes the immense investments necessary to create sweeping change, as well as the history of racism that must be abandoned, as it creates a significant challenge to achieving climate and equity goals; therefore, the City reiterates its commitment to climate leadership. To achieve effective collaboration at a larger scale, the City will connect with other Milwaukee County municipalities to encourage their engagement in climate action planning and to coordinate planning and implementation. Government action must be combined with action taken by private utilities, businesses, and residents. Change can be hard, but building trust, collaboration, and a vision of the common good will prepare Milwaukee for a bright future.

Milwaukee residents by the lakefront. Photo Credit: VISIT Mlwaukee.

CLIMATE CHANGE
VULNERABILITIES & OPPORTUNITIES

Climate change is caused by a rise in global temperatures due primarily to the burning of fossil fuels, such as coal, oil, and gas, which release excessive amounts of carbon dioxide and other greenhouse gasses into our atmosphere. Without dramatic action to fight climate change, many parts of the Midwest will face serious threats to survival within a few generations.

EXTREME HEAT
is more deadly to Wisconsinites than all other weather disasters
COMBINED

Without decisive federal and local climate action, climate-related disasters will cost
taxpayers hundreds of billions of dollars.

Climate change will lead to
limited food availability, price increases, and increased food insecurity

Flooding has increased so much in Wisconsin that
a 100-year flooding event in 1961, now occurs about every 40 years

Extreme Weather and Flooding

The Midwest has gotten warmer, with average annual temperatures increasing over the last several decades. Between 1900 and 2010, the average air temperature increased by more than 1.5 degrees Fahrenheit. The rate of increase in temperature has accelerated in recent decades, particularly nighttime and winter temperatures. According to the **National Climate Assessment** , more extremes in precipitation can be expected in addition to more intense storms and extended periods of drought.[2]

The Milwaukee area is already experiencing the impact of heavier storms and flooding:

- The City reported that catastrophic flooding in July 2010 caused over $30 million in damage to homes and businesses and caused hundreds of job losses.[3]
- AP News reported that flooding across Wisconsin in August 2018 caused over $208 million in damage. [4]
- Currently, Risk Factor calculates 19,413 properties in Milwaukee County are at risk of flooding and that risk will increase in the future.[5]

Groundwork Milwaukee has created a tool, titled the **Milwaukee Flood and Health Vulnerability Assessment** , to help identify the communities in Milwaukee that are disproportionately impacted by flooding as well as health, socioeconomic, and housing indicators.

Extreme heat is more deadly to Wisconsinites than all other weather disasters combined ,[6] as it can lead to heat stroke, dehydration and worsen chronic diseases. The greatest health risks occur because of extended heat events or excessive nighttime temperatures. By 2050, University of Wisconsin-Madison experts predict that Milwaukee will see three times as many days with a heat index above 105 degrees Fahrenheit. [7] They also note that during a heatwave in 1995, Milwaukee County reported 91 heat-related deaths, many of which occurred in low-income neighborhoods. Higher temperatures can also result in an increase in violent crime. [8]

Food Production and Hunger

Scientists at the Environmental Protection Agency warn of an economic recession caused by major economic impacts of climate change by 2100. [9] Two causes include more frequent crop failures and disturbances to major trade routes. Without decisive federal and local climate action, the report warns, climate-related disasters will cost taxpayers hundreds of billions of dollars.

Climate change is expected to have many impacts on agriculture, forests, and other ecosystems in the Midwest. Agricultural lands make up two-thirds of the midwestern region's land area and produce 65% of the nation's corn and soybeans.[10] Some climate-related impacts may provide short-term benefits for agriculture, but negative effects are also expected in this time frame. In the long-term, climate impacts are likely to have increasingly detrimental effects that increase variability in crop and agricultural production. There may be higher yields of important agricultural crops for a limited period of time; however, over time increasingly warmer

Milwaukee Public Schools students enjoying lunch.

Spring Garden Prep Day in Westlawn Gardens.

temperatures and other stressors are expected to decrease yields.

The U.S. Department of Agriculture warns that climate change will likely worsen existing food insecurity[11] due to limited local food availability, price increases, interrupted transportation, and diminished food safety. Many people in Milwaukee already experience hunger and food insecurity. In 2020, 15% of Milwaukee County residents were food insecure,[12] compared to a national average of 13%. 61.4% of Milwaukee Public School students [13] are eligible for the Free Lunch Program, while 82% were determined to be economically disadvantaged.[14]

Climate Migrants

Climate change may also increase the number of climate migrants to Milwaukee, people who move to more temperate climates from other parts of the world experiencing impacts like drought, coastal flooding, and wildfires. Integrating new immigrants in Milwaukee will require planning. The City can prepare for this growth by expanding the amount of affordable housing available while also implementing its *Anti-Displacement Plan*.

THE GOOD NEWS IS THAT FIGHTING CLIMATE CHANGE CAN ALSO CREATE SIGNIFICANT ECONOMIC AND ENVIRONMENTAL BENEFITS.

Charting a New Course

There are 71,370 clean energy jobs in Wisconsin. In-state production of 100% clean energy would create an estimated 162,000 good, high-paying jobs in Wisconsin according to a study by the Midwest Economic Policy Institute.[15] The median income for a solar installer in Wisconsin is $76,194[16] per year and an energy efficiency specialist is $67,945[17] per year, as of December 2022.

Making homes more energy efficient reduces energy bills. Wisconsin households saved an average of $500 per year[18] after their homes were weatherized. Wisconsin's main energy efficiency program, Focus on Energy, is extremely cost-effective. Every $1 invested results in nearly $5 in benefits for all utility ratepayers.

In addition to saving money, reducing dependence on fossil fuels results in improved health and quality of life for Wisconsin's residents. Producing 100% clean energy in Wisconsin would reduce air pollution, saving $21 billion every year due to avoided health damages. A decline in the use of gasoline-powered vehicles, through increased use of transit, biking and walking, and electric vehicles, will reduce local air pollution.[19]

Planting more trees is a key climate change strategy, as trees absorb greenhouse gas emmissions and cool the environment through evapotranspiration. Increased tree cover can decrease nearby air temperatures by up to 9 degrees Fahrenheit ,[20] another benefit in a warming world. Studies, like one conducted by the USDA ,[21] also show a strong relationship between more tree canopy and community cohesion, including lower levels of crime.

The Milwaukee River Greenway. Photo Credit: VISIT Milwaukee.

Schlitz Audobon Nature Center. Photo Credit: VISIT Milwaukee.

USING AN EQUITY LENS

The City-County Task Force on Climate and Economic Equity was formed in 2019 to create a plan to tackle climate change while also reducing racial and economic inequity in the City and County of Milwaukee. For example, making buildings substantially more energy efficient will require more energy efficiency technicians, which are jobs that pay a decent wage and cannot be outsourced. Improving public transit to increase adoption can reduce community greenhouse gas emissions while connecting more people to family-supporting jobs. Such improvements to the public transit system would also benefit under-served community members who rely more heavily on public transit.

Task Force members and the work groups they led examined best standard policies to reduce greenhouse gas emissions, and, over a year of research and discussion, modified those recommendations to make sense for Milwaukee in reducing inequity. The Task Force agreed that addressing historic racial disparities is a co-equal goal of the plan and it is critical to achieving the recommended climate goals.

Black and Latino households often spend a disproportionately high percentage of their income on energy bills, a term known as energy burden. Ensuring access to energy efficiency programs can provide needed relief to a household's budget. If electric vehicle (EV) charging infrastructure is not equitably distributed so that everyone can access it, the City will not achieve its target EV adoption rates.

The Task Force and Work Group members recognize that while climate change affects us all, it does not do so equally. Underserved communities bear the brunt of most impacts of climate change, like urban heat islands and flooding. The Task Force worked to include communities of on working groups and public conversations about the plan. ECO also hired a FUSE Executive Fellow to support robust community engagement on the plan.

The Task Force, and by extension, this *Climate and Equity Plan*, does not aim to solve all inequities in the City of Milwaukee; Instead, it aims to tackle climate change in a way that reduces inequity and does not worsen existing inequities. Put more simply, this is a "just transition" of our energy and transportation systems with goals that align on most federal efforts and investments to tackle the climate crisis.

Fuse Executive Fellow with community members.

The **Justice40 Initiative** was an effort to ensure that at least 40% of federal investments under the Infrastructure Investment and Jobs Act (IIJA), also known as the Bipartisan Infrastructure Bill, accrue to "disadvantaged communities" across the U.S. Communities are designated as disadvantaged if they face a number of challenges, including dependence on fossil fuel, high energy burdens, more exposure to climate and environmental hazards, and socioeconomic vulnerabilities. The federal investments flowing from the IIJA include investments in clean energy and energy efficiency, clean transit, affordable and sustainable housing, training and workforce development, and the development of clean water infrastructure, among others. Go to Chapter 8 for more details on the IIJA and the IRA.

Similarly, the **Inflation Reduction Act (IRA)** provides more incentives for lower-income households to make energy efficiency, renewable energy and electrification improvements to their homes, purchase new and used electric vehicles, and address historic environmental inequities through Environmental Justice Block Grant programs. More details are available on the Clean Energy For All website at cleanenergy.gov.

Example of rooftop solar.

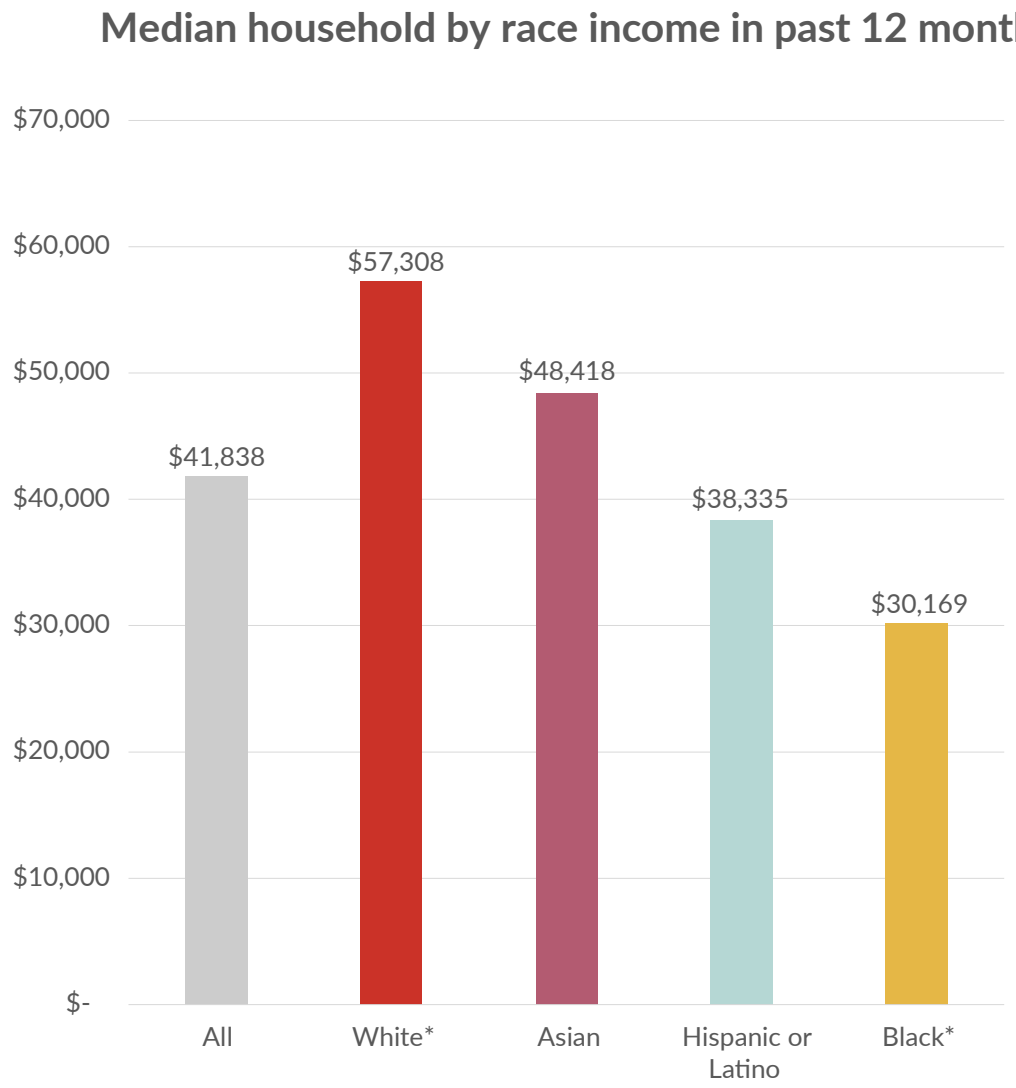
At the federal level, the Biden Administration, Department of Energy, Department of Transportation, and Environmental Protection Agency are all aligned on advancing energy justice while also fighting the climate crisis. This will be done by addressing high energy burdens, creating pathways for workers needed to accelerate energy and transportation system transitions, and ensuring resources for all members of society to transition their own homes, vehicles and communities.

During the first year of the City-County Task Force on Climate and Economic Equity, members and partners, like Citizen Action of Wisconsin, helped communicate the daunting inequities facing the City of Milwaukee. Reference the Task Force's Preliminary Report, issued March 2020, for academic reports on racial disparities that have been persistent for four decades. One example is the Wisconsin Poverty Report supplement published by the University of Wisconsin-Madison in 2018 entitled "Poverty, Incomes, Race and Ethnicity in Wisconsin and Milwaukee."[22]

Among many troubling statistics, the report finds that 79% of African American households in Milwaukee County have incomes beneath the minimum family survival budget. Additionally, the African American poverty rate is 300% higher and the Latino poverty rate is 85% higher than the White poverty rate, even after social safety net programs. Similarly, in July 2020 UWM's Center for Economic Development published a report entitled " The State of Black Milwaukee in National Perspective: Inequality in the Nation's 50 Largest Metropolitan Areas ." [23] The report indicates that Milwaukee is at or near the bottom of the list in key figures of economic disparity. As the City further develops key performance indicators for its programs, these types of racial equity indicators should be included. These and other reports underscore the need for intentional economic policy and practice that creates more paid-training and job opportunities for people of color.

Importantly, the troubling statistics in these reports are metropolitan disparities, meaning they extend beyond the City of Milwaukee. Suburban housing policies and practices, business investment decisions, and state government transportation decisions all contribute to the problem. The City of Milwaukee can do its part to address these disparities, but ultimately needs partnership from the suburban communities, businesses and their associations, and elected officials from across the political spectrum.

Within Milwaukee great racial disparities in household income persist, in fact increasing in the last decade. Income disparities affect homeownership, which has declined 14% in the past 15 years. Now, just 37% of housing units are owner-occupied (including multi-family housing), with the Black homeownership rate half of that of White households.[24] Homeownership rates and aging housing stock (42% of city housing stock was built prior to 1940) directly cause environmental justice problems like high energy burdens and childhood lead poisoning. Many Black and Latino families renting older homes that are energy inefficient and contain lead paint and dust hazards. The *Climate and Equity Plan* seeks to directly address those issues by improving programs available to renters and better engaging landlords.



Median Income Chart by Race (Timeframe: 12 Months)

	Black*	Hispanic or Latino	Asian	White*	All
2015-2019	$30,169	$38,335	$48,418	$57,308	$41,838
2010-2014	$28,178	$34,494	$42,795	$51,858	$38,362
Change	$1,991	$3,841	$5,623	$5,490	$3,476

Source: US Census Bureau, 2010-2014 and 2019 American Community Survey 5-Year Estimates in 2019 dollars. (*Not Hispanic or Latino)

Advancing Existing City Anti-Displacement Strategies

In developing the *Climate and Equity Plan*, Task Force members and other residents of the community expressed a desire to see investment in neighborhoods. They also communicated concerns for gentrification and displacement of existing residents that could occur with sharp increases in property values. The *Climate and Equity Plan* outlines many strategies to encourage reinvestment in Milwaukee's neighborhoods, including funding healthy home retrofits, new homes built on vacant lots, new trees and green infrastructure, and transit-oriented development. Supporting homeownership and stable or increasing property values can help create generational wealth in communities of color, but must be balanced with people's current ability to pay rent and property taxes.

The City, working with both new partners and established residents and groups, needs to build trust and collaboration. The City and its planners acknowledge the historical trauma of racism and discrimination inflicted on people of color, sometimes wrought by the planning profession itself, which led to structural disadvantages in housing, transportation, education and employment that last to this day. The City of Milwaukee is committed to examining and improving its community engagement and neighborhood planning practices, with an explicit focus on reducing barriers that may hinder participation from under-represented groups, to advance racial and social equity.

An Equitable Future

Environmental justice is only possible if income, race, ethnicity, and place of residence does not determine the burden people face from climate change. As seen throughout this document, each of the 10 Big Ideas were formed with equity at the forefront. The Task Force, all work group members, and the City of Milwaukee are proud to have engaged such a large, diverse group of stakeholders in creation of the recommendations to dramatically reduce greenhouse gas emissions 45% by 2030 and reach net-zero greenhouse gas emissions by 2050; however, all stakeholders know that this plan means very little without good implementation. ECO will work in collaboration with its partner departments at the City, along with many valuable external partners and stakeholders, to ensure quality implementation. The Milwaukee Department of Compliance and Engagement has many resources to support community engagement and compliance with the goals of this plan.

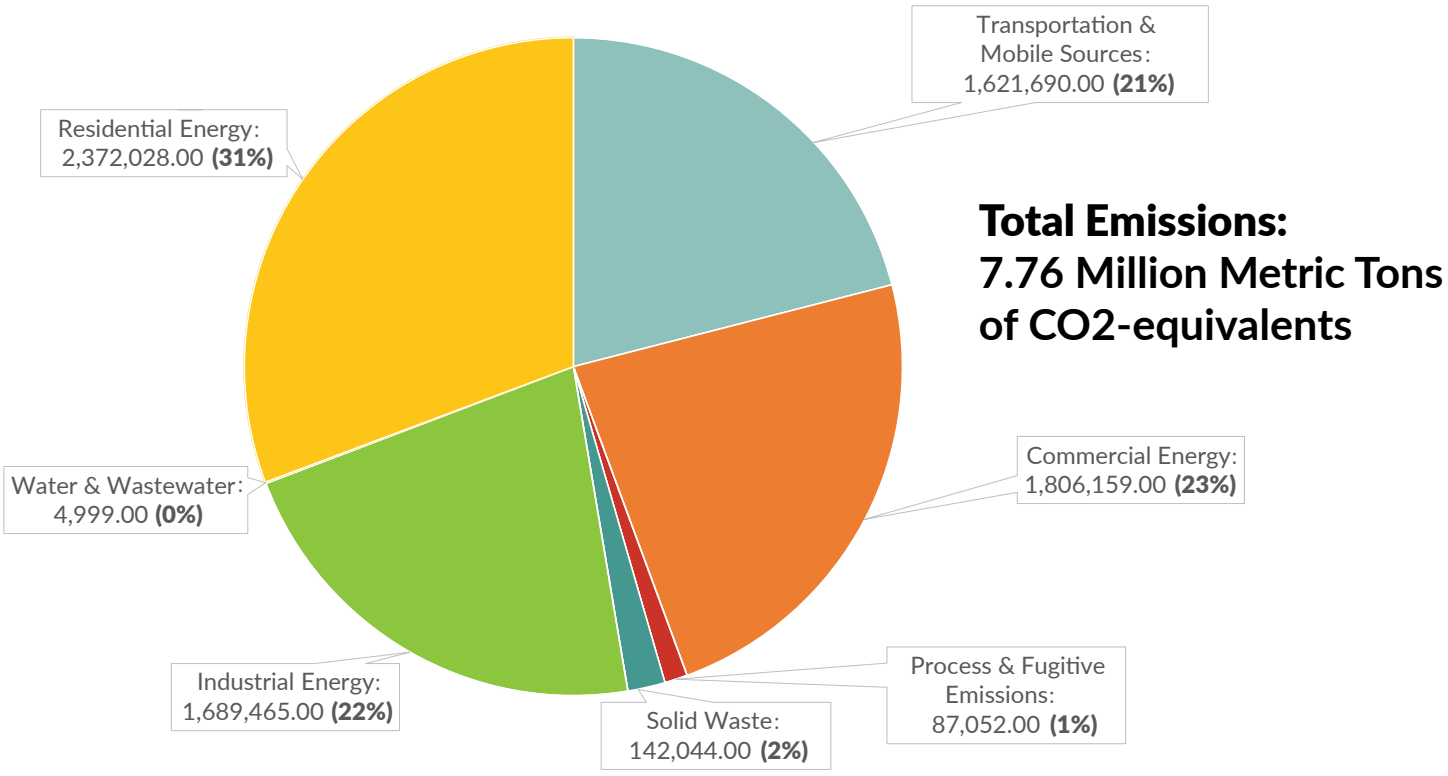
Green Infrastructure Example: Fondy Park.

GREENHOUSE GAS INVENTORY

2018 Greenhouse Gas Inventory

Milwaukee completed its most recent greenhouse gas inventory for calendar year 2018. After reviewing more detailed assessor data and information from the U.S. Department of Energy's State and Local Planning for Energy (SLOPE) Platform, International Council for Local Environmental Initiatives (ICLEI) revised the inventory to the following breakdown of the city's 7.7 million metric tons of carbon dioxide equivalent (MTCO2e) emissions. The complete inventory is available at milwaukee.gov/climate action and under "Reports."

Milwaukee City 2018 Greenhouse Gas Emissions - CO2e (Using Alternative Analysis Methodology)



Business as Usual (BAU) Emissions Forecast

ICLEI developed a forecast of future greenhouse gas emissions in Milwaukee under a business as usual (BAU) scenario using projections of Wisconsin's future population prepared in December 2013 for the Wisconsin Department of Administration. This forecast showed Milwaukee's emissions increasing from about 7.7 million metric tons of carbon dioxide equivalent (MTCO2e) emissions in 2018 to about 8.2 million in 2050 due to expected population growth if no action is taken to reduce per capita greenhouse gas emissions output.

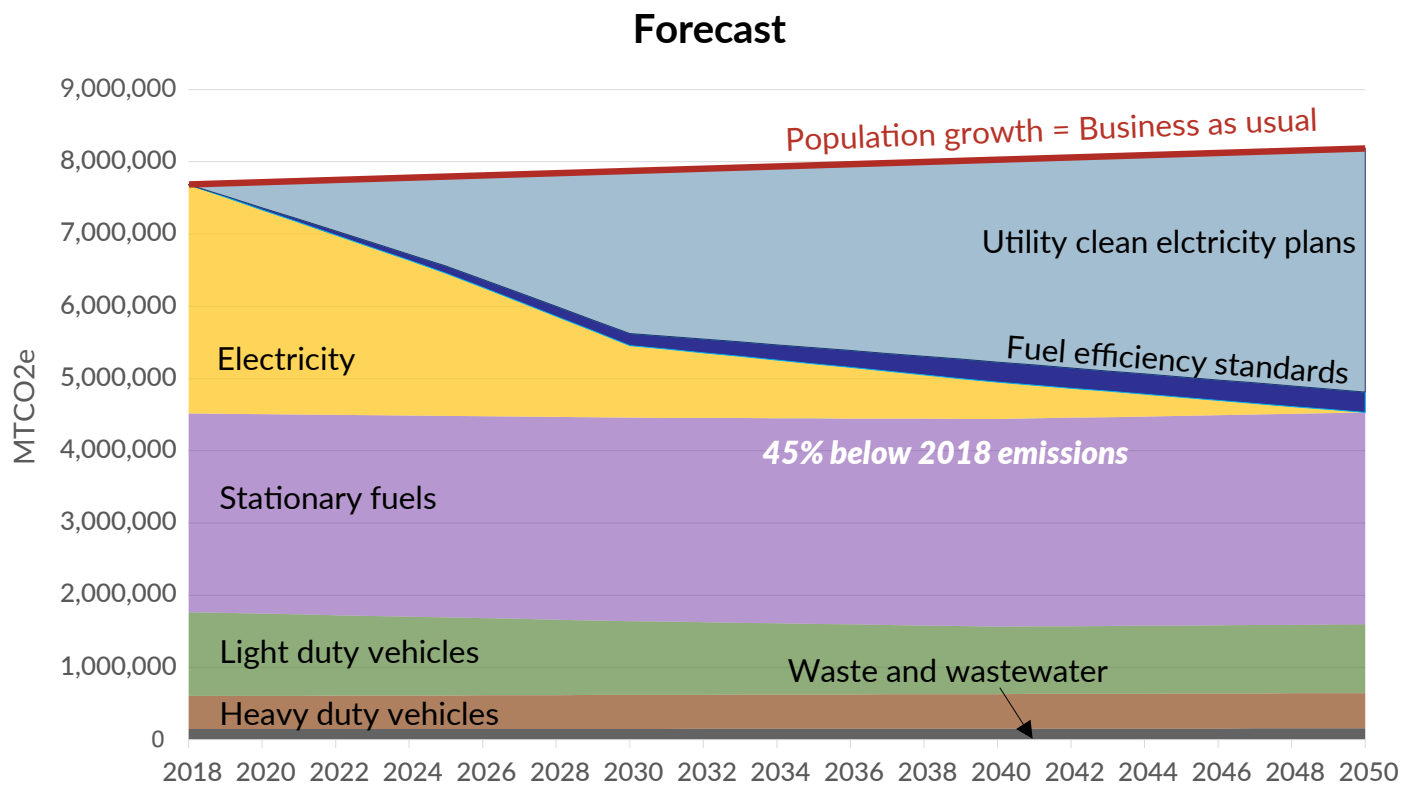
The analysis then accounted for expected reductions in grid electricity emissions from We Energies' stated goals of reducing its own emissions associated with electricity generation:

- 60% reduction in 2025
- 80% reduction by 2030
- Carbon neutrality by 2050

The forecast also included changes to automobile fuel efficiency based on the Trump Administration Fuel Standards established by the National Highway Traffic Safety Administration:

- 14% reduction in fuel per mile in 2030 for light duty vehicles
- 23% reduction in fuel per mile in 2040 for light duty vehicles (constant after 2040)
- No change to heavy duty vehicle efficiency

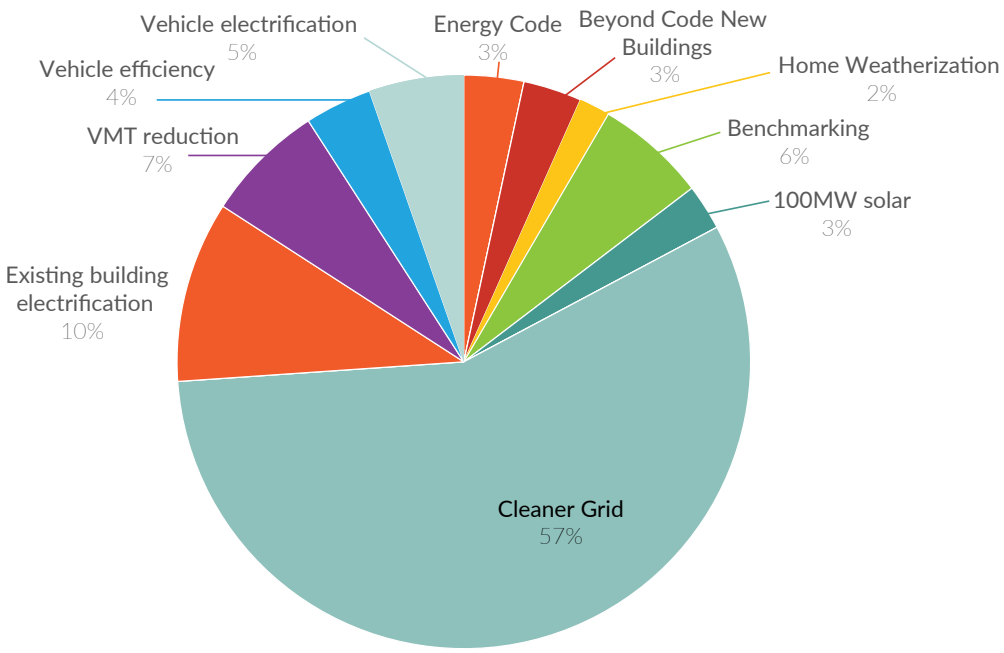
Although the greenhouse gas emission reductions associated with these expected external changes are significant, ICLEI concluded that "without any additional emissions reductions, Milwaukee would fall short of its 45% reduction by 2030 goal."



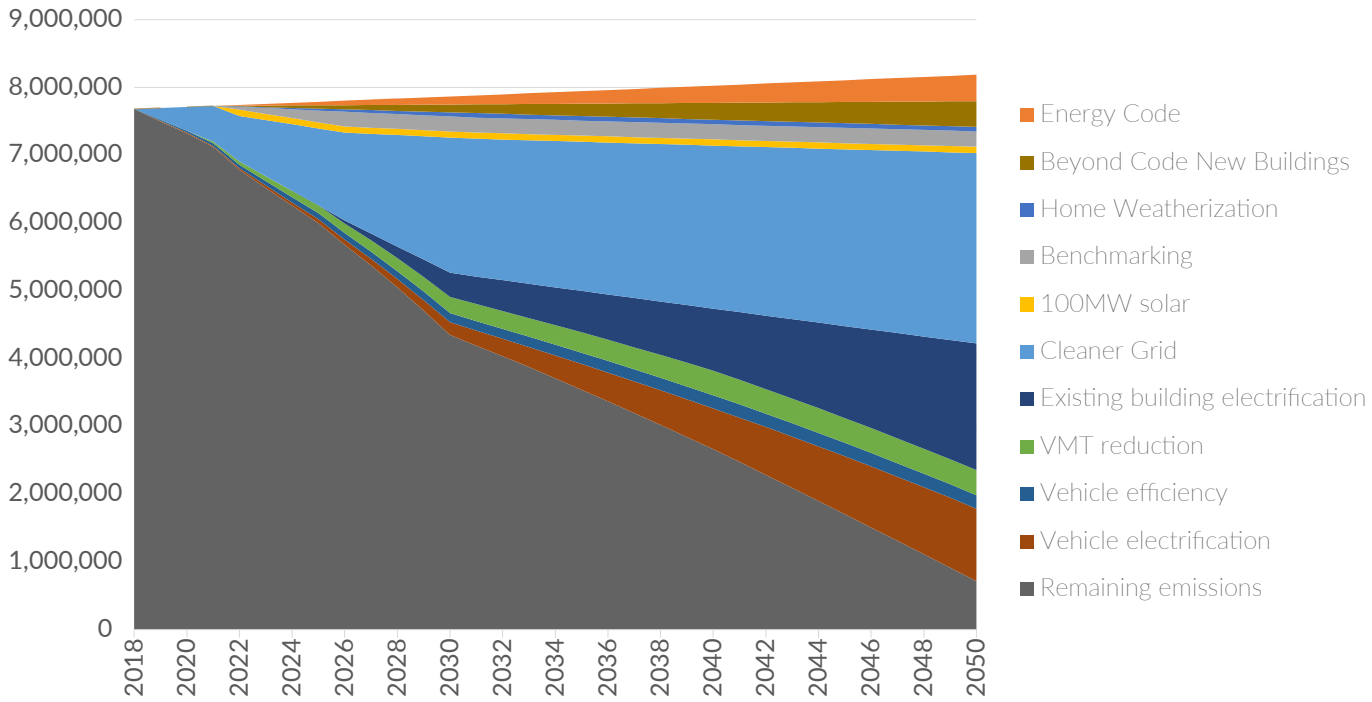
Total Estimated Greenhouse Gas Reductions

The following images summarize the greenhouse gas reductions from each of the strategies included in ICLEI's wedge analysis, starting with reductions from each action over time. As shown, the estimated reductions match Milwaukee's interim goal of a 45% reduction from 2018 greenhouse gas emissions by 2030 but show some remaining emissions in 2050. The following two graphs provide a breakdown of the reductions from each action in 2030 and 2050:

2030 Emissions reductions by action (% of total reductions)



Reductions by action over time



Accounting for Greenhouse Gas Emissions

Accounting for a community's greenhouse gas emissions depends in part on which emissions are counted. The City of Milwaukee follows international reporting protocol and works with experts to refine how emissions are estimated. Greenhouse gas emissions are categorized by scope for reporting purposes, which allows for the collection of activity data without double counting when reporting.

- **Scope 1** emissions are those occurring within the boundary of the community, such as combustion of natural gas for heating or gasoline for vehicles.
- **Scope 2** emissions are emissions that occur outside the boundary but are demanded by activity within the boundary, such as electricity generation.
- **Scope 3** emissions occur outside a boundary but relate to in-boundary activities. These include in-boundary generated solid waste or wastewater that is exported to another boundary or cross-boundary transportation.

The *Climate and Equity Plan* is primarily focused on Scope 1 and 2 emissions, which are the common starting point for municipal climate plans. Some cities include Scope 3 emissions that occur outside of the municipal boundaries, including airport transportation. The City of Milwaukee will face major challenges tracking and reducing its more fundamental Scope 1 and 2 emissions. The embodied emissions of products we use (eg. the energy used to produce goods elsewhere that are consumed in Milwaukee) are addressed to a limited degree by Big Idea #9 Waste Reduction and Sustainable Consumption, but are otherwise outside the scope of this plan.

Next Steps

Greenhouse gas emission reporting requires collecting data from utilities, regional transit authorities, and other agencies, and applying assumptions about fuels used and other factors. Estimating greenhouse gas reductions from federal, state, and local actions requires predictive models and other analytical tools. ECO is working with ICLEI and other communities to streamline data collection on greenhouse gases across communities. ECO is also exploring standardized web-based analytical tools and dashboards to estimate greenhouse gas reductions from the major strategies outlined in subsequent chapters, as well as other action items that are becoming common in communities across the country.

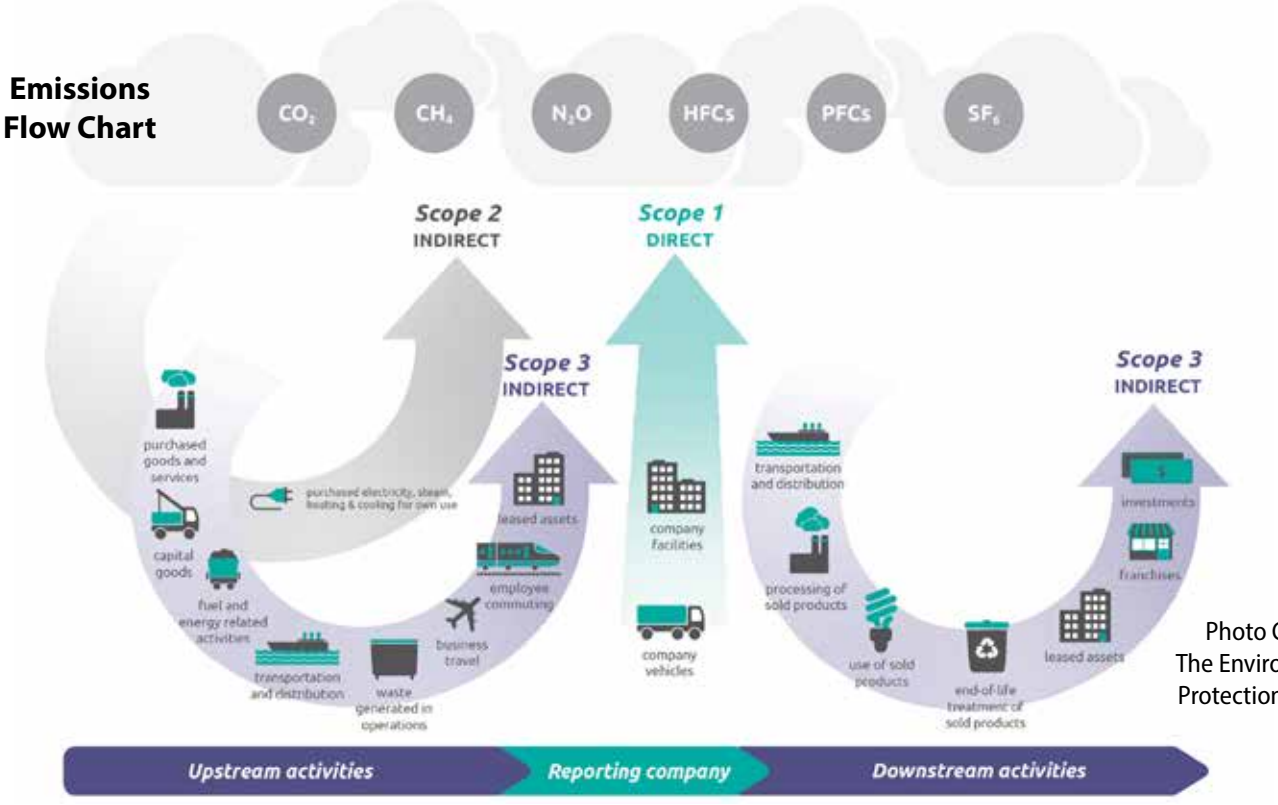


Photo Credit: The Environmental Protection Agency

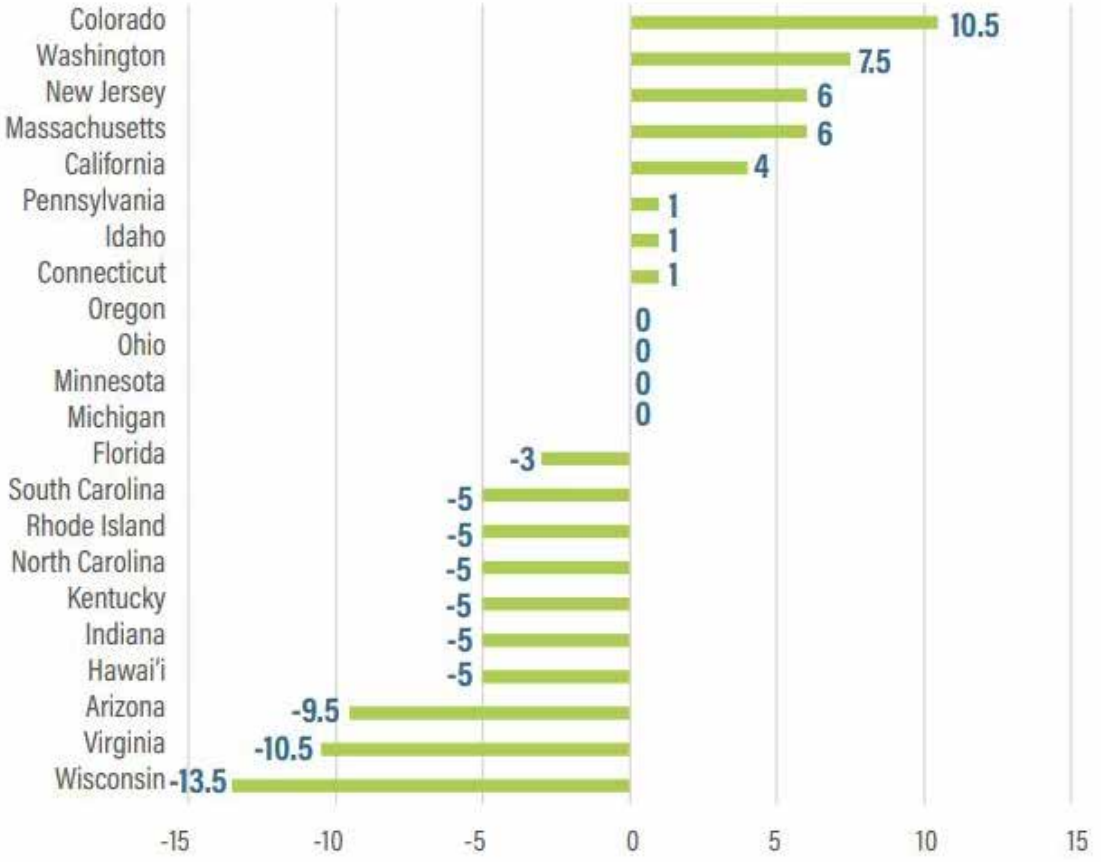
PUBLIC & PRIVATE SECTORS

In developing the *Climate and Equity Plan*, the Task Force focused on policies and programs that the City of Milwaukee has the political power and financial resources to implement, while also noting where the City would advocate for state and federal law changes to help it reach its goals. The plan also indicates where the City will seek external financial resources to implement recommended programs and policies.

Cities in Wisconsin are at a significant disadvantage, as state law prohibits many avenues of local action, like setting local building codes that require higher energy efficiency standards than those set at the state level. The American Council for an Energy Efficient Economy (ACEEE) publishes a national clean energy scorecard for cities. The report documents the distinct disadvantage Wisconsin law puts on its cities in implementing local energy codes. The figure below shows that the net effect of Wisconsin state action reduces Wisconsin cities' scores by 13.5 points, meaning that state policy limits local climate action more so than in any other state evaluated in the scorecard. On the other end of the graph, the net effect of the State of Colorado's actions has increased its cities' scores by 10.5 points. Milwaukee is currently ranked 53 out of 100 cities.

The good news for the private sector is that recent federal funding for climate action and infrastructure does contain "Buy American" requirements. This creates new opportunities to support the clean energy economy for Wisconsin manufacturers and companies, such as Ingeteam, Johnson Controls, Generac Power Systems, and many others.

Net Effect of state action on city scores



2021 City Clean Energy Scorecard by the American Council for an Energy Efficient Economy

Impact of a Privately-Owned Public Utility

As Milwaukee's electric utility, We Energies has an outsized influence on the use of fossil fuels in the community. Wisconsin is a regulated utility state and Milwaukee is located in the We Energies service territory. We Energies is an investor-owned utility that is accountable to its shareholders and is regulated by the Wisconsin Public Service Commission. As Milwaukee's public electric and gas utility, We Energies provides electric power and gas services to buildings, streetlights, and, increasingly, electric vehicles.

Relative to other utilities around the country, We Energies has been slower to incorporate renewable energy into its grid and has created barriers to residents and businesses installing their own renewable energy. Given that radical changes to the ownership and structure of the utility are politically unlikely, Milwaukee should partner with We Energies when appropriate to advance the City's climate goals. The City of Milwaukee must also be willing to advocate at the State's Public Service Commission and other venues to effectively regulate the utility in the public interest when necessary.

In the Context of the Public Sector

The following plans illustrate the climate and equity work that has already been done in the region, as well as possible points of collaboration with other entities:

- **The 2013 *ReFresh Milwaukee Sustainability Plan*** is a citywide, strategic plan to develop a sound environmental, economic and social sustainable future for the community. The plan aims to implement sustainable projects and encourage citizens and businesses to engage in solutions that are economically, environmentally, and socially smart for our community.
- **The 2019 *Green Infrastructure Plan*** provides street-focused stormwater strategies to improve water quality and reduce polluted stormwater runoff. The program's strategies are considered when designing a street for repaving or reconstruction projects to maximize the sustainable benefit of the street network.
- **The 2019 *Resilience Plan*** for the Milwaukee metropolitan area was founded upon the concepts of a healthy environment, strong schools, robust economy, and collaborative governments. The plan details 20 actions that are grouped into three vision categories:

    1. Environment & Society - Improving the quality of public spaces and services.
    2. Economy & Society - Improving access to jobs by creating and connecting people to opportunities. This vision aims to close the wealth gap and ensure that quality of life is not determined by race or ethnicity.
    3. Infrastructure & Environment - A collaborative approach on improving regional resiliency while accounting for strained infrastructure budgets.

- **The 2022 *Wisconsin Clean Energy Plan*** is a statewide plan that will lower energy bills, fight climate change by investing in clean energy technologies, and possibly create up to 40,000 jobs.
- **The 2022 *Wisconsin Electric Vehicle Infrastructure Plan*** will promote long-distance travel in electric vehicles by placing approximately 60 charging stations in a 50-mile radius of Wisconsin's designated Alternat ive Fuel Corridors, according to WisDOT.

People enjoying Milwaukee's Lakefront.
Photo Credit: VISIT Milwaukee.

Chapter 6

THE 10 BIG IDEAS

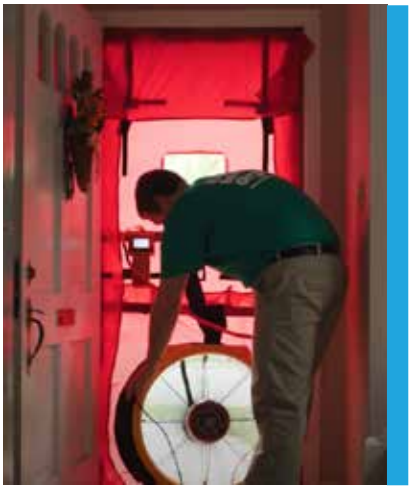
WHAT ARE THE 10 BIG IDEAS?

Task Force members and citizens chaired subject area work groups consisting of Milwaukee residents and representatives from environmental groups, local government, non-profit organizations, and businesses. These working groups developed a ***Preliminary Report*** in March of 2020, which can be found at milwaukee.gov/climateplan under "Planning Process." Nine work groups then met throughout 2021 to develop initial recommendations for implementation beginning in 2023.

Each work group developed one or more proposals for a specific sector, including jobs, transportation, buildings, the energy grid, land use, waste management, and resiliency. All of the working groups understand and accept the fiscal constraints of the City; however, they were instructed to "think big" to position Milwaukee for federal grants and other funding opportunities that are now available to meet the goals established by the Common Council and County Board.

Working groups finalized their proposals, the 10 Big Ideas, that now form the foundation for the *Climate and Equity Plan*.

1. Green Jobs Accelerator

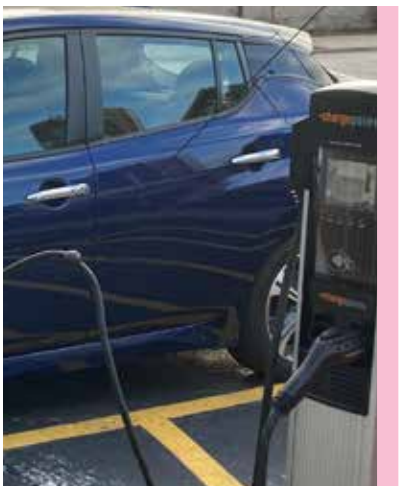


2. Healthy Home Energy Upgrades

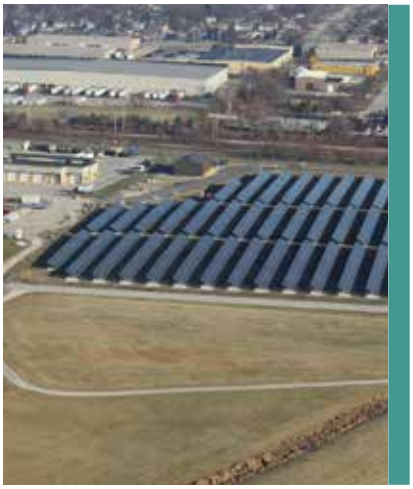
3. New Net-Zero Energy Homes

4. Commercial Building Energy Benchmarking & Energy Performance Standard

5. People Centered Transportation and Urban Design



6. Electrify Transportation



7. Greening the Electric Grid

8. Protect and Restore Nature in the City

9. Waste Reduction and Sustainable Consumption

10. Resilience Ambassadors

1. GREEN JOBS ACCELERATOR

Employ more people from economically distressed neighborhoods in family-supporting green jobs.

Workers making home improvements.

Importance

The City of Milwaukee Common Council established the City-County Task Force on Climate and Equity in 2019 (CCFN 190445) to make recommendations on addressing the ongoing climate crisis and mitigating racial and economic inequity through green jobs. According to the Bureau of Labor Statistics, green jobs are defined as jobs that produce goods or provide services that benefit the environment or conserve natural resources. Some of the most likely growth categories for green jobs include electricians, HVAC technicians, weatherization workers, and arborists. Electricians and associated positions are particularly important in supporting solar energy projects, electric vehicle charging infrastructure, energy-efficient lighting replacements, and other beneficial electrification work. Positions of opportunity are not limited to traditional trades. A whole generation of engineers, developers, sales teams, and other related support positions will be necessary to realize the clean energy transition.

Recent federal investments in climate and infrastructure create a tremendous opportunity for family-supporting jobs in Milwaukee's neighborhoods. The Inflation Reduction Act and Infrastructure Investment and Jobs Act contain explicit directives to support American-made products, equity, and wage protections. The federal funding aligns with the values of this plan.

Now is the time to invest in building a diverse clean energy jobs workforce. Energy efficiency, renewable energy, clean transportation, and resilient buildings support the Milwaukee economy and the environment. Milwaukee sees a growing opportunity for workers to reduce energy bills, protect natural resources, and create better buildings through energy efficiency improvements. As outlined in previous sections on racial equity, Milwaukee has unacceptable racial disparities in employment, household income, and other economic factors. As Milwaukee transitions to a clean energy economy, intentional steps are needed to include people of color.

The U.S. Department of Energy reports that cost-effective energy efficiency upgrades in U.S. buildings could save property owners $100 billion each year in energy bills and 30% electricity use. This translates to an estimated annual savings of $400 for each household with energy-saving upgrades. It is only possible to generate these savings when knowledgeable workers design the equipment and buildings, ensure a quality installation, communicate energy efficiency benefits to buyers, and are themselves employed in a family-supporting job. Over two million Americans already work in the building energy efficiency sector, but many receive little training on these technologies before entering the workforce. New federal investments in clean energy infrastructure will also require a ready and trained workforce. Failure to grow the clean energy and infrastructure workforce at a scale commensurate with new federal funding will drive price increases. It's imperative that Milwaukee grow the number of skilled workers in relevant trades to boost household income. Expanding the number of workers and employers who can support the clean energy transition can also help control costs and inflation. More companies and workers competing to meet the demand for clean energy projects means more competitive pricing. In the growing clean energy economy, there should be enough customer demand to sustain existing companies and create opportunities for new workers.

The wages in the table on the next page represent median market wages for Milwaukee County. Journey workers represented by the organized buildings trades are well-trained and make better wages and benefits than their counterparts. Entry into these career pathways is through registered apprenticeship programs. Skilled trades representatives, utilities, non-profit organizations, and the City will explore opportunities to improve collaboration through policy and practice to grow the overall number of skilled tradespeople, as well as increase and diversify the number of represented employees. As an example, Green Homeowners United is working to increase the skill level and wages of weatherization workers in partnership with local unions.

The Milwaukee County wage table shows several categories of skilled trades offer family-supporting wages and career ladders through apprenticeships, such as electricians and plumbers; however, these growing fields are over 84% White. Growing the total number of green jobs presents an opportunity to focus on diversifying the workforce. Trades can pay

GREEN JOBS STATISTICS FOR MILWAUKEE COUNTY

DESCRIPTION	ELECTRICIANS	PLUMBERS, PIPE FITTERS, AND STEAMFITTERS	HEATING, AIR CONDITIONING, AND REFRIGERATION MECHANICS AND INSTALLERS	LANDSCAPE ARCHITECTS	INSULATION WORKERS, FLOOR, CEILING, AND WALL
Median Annual Earnings	$70,625.75	$72,155.02	$62,768.35	$50,533.85	$35,592.44
2020 Turnover Rate	65%	50%	42%	34%	74%
Typical Entry Level Education	High school diploma or equivalent	High school diploma or equivalent	Postsecondary non-degree award	Bachelor's degree	No formal educational credential
Typical On-The-Job Training	Apprenticeship	Apprenticeship	Long-term on-the-job training	Internship/ residency	Short-term, on-the-job training
Males % of Occupation	97%	99%	99%	70%	92%
Total Diversity % of Occupation	16%	15%	13%	11%	N/A
White % of Occupation	84%	85%	87%	89%	73%
Median Hourly Earnings	$33.95	$34.69	$30.18	$24.30	$17.11

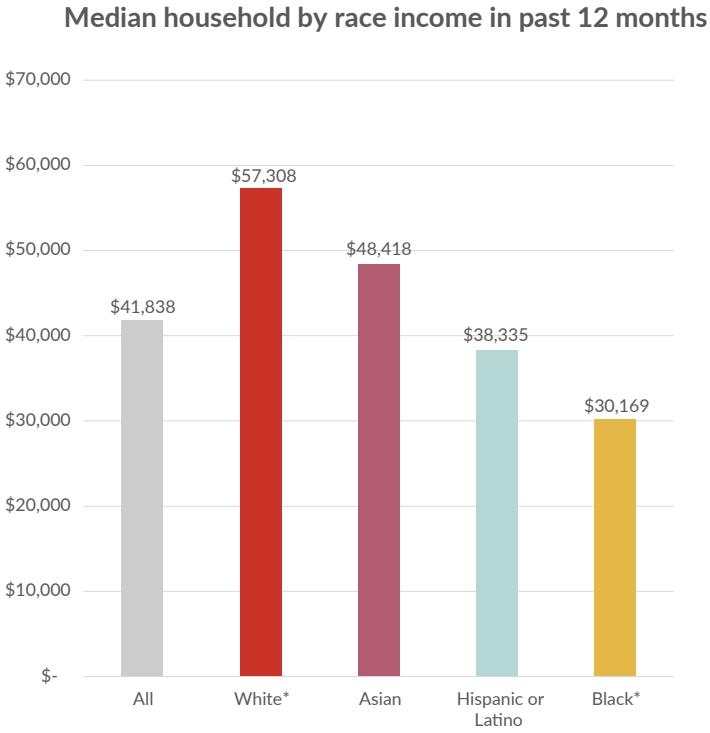
Source: Economic Modeling Systems International (EMSI), Milwaukee County

a higher wage precisely because they require higher skill, years of training, on-the-job experience, and are often physically demanding. Moving forward, employers must commit to hiring people of color and create a welcoming and fair work environment. Other green jobs, like insulation workers, have higher levels of diversity but lower pay and higher turnover rates. Employers must offer higher, family-supporting wages for this difficult and dirty work in exchange for a higher level of training and skill. Raising wages and upskilling workers in this industry will result in more consistent and higher-quality work for consumers.

According to the U.S. Energy and Employment Report (2020), 80-90% of efficiency employers reported hiring difficulty for construction-related efficiency jobs.[25] For green jobs to grow, a number of workforce challenges must be overcome. The U.S. Energy and Employment Report (2020)[26] and Diversity in the U.S. Energy Workforce Report found that women and Black Americans are significantly underrepresented in the workforce. For example, Black Americans make up 12% of the nation's workforce, but only constitute 8% of the energy efficiency workforce. Challenges include: fragmented and nontransparent credentials for jobs, insufficient teaching materials, limited adoption of digital tools, and more hiring difficulties among employers

Equity

Milwaukee has significant racial disparities in employment. According to the census data, the unemployment rate for Black residents is more than twice that
of White residents, and Black males experience persistent high levels unemployment. The median White family in Milwaukee earns almost double of a Black family. Black residents in Milwaukee also live in poverty at much higher rates than White residents. The significant disparity in income, coupled with high unemployment and poverty rates, contribute to low homeownership rates among Black residents (25.2%) compared to White residents (55.8%) and housing cost burden (59.8% for Black residents compared to 39.8% for White).



Milwaukee Median Income Chart by Race

	2010-2014	2015-2019	Change
Black*	$28,178	$30,169	$1,991
Hispanic or Latino	$34,494	$38,335	$3,841
Asian	$42,795	$48,418	$5,623
White*	$51,858	$57,308	$5,490
All	$38,362	$41,838	$3,476

Source: US Census Bureau, 2010-2014 and 2019 American Community Survey 5-Year Estimates in 2019 dollars. (*Not Hispanic or Latino)

Today, four out of five green trade jobs are occupied by an aging, White, male workforce. People of color are dramatically underrepresented in these fields; however, green jobs provide good wages, among many other benefits, and represent significant opportunity for people of color in Milwaukee:

- Substantial quantity of total jobs with positive 10-year growth rates
- Family-supporting wages and favorable advancement opportunities
- Industry has job openings but needs more skilled workers to fill vacancies

Higher-paying green jobs require higher training and experience. Requirements include:

- Candidates who are interested and aware of green job opportunities
- Support to enroll in and complete training programs (financial and transportation)
- Willing employers to hire Milwaukee residents and workers of color with family-supporting wages and benefits
- Sustained market demand in the green jobs and trades sectors that induce employers to hire and retain workers

Resiliency

Increasing the median income for people of color, especially Black families, is an essential condition for strengthening the region's economic resiliency. When all residents, regardless of background, are offered stable, positive economic opportunities, incomes are more equitably distributed with fewer falling below the poverty line. The region as a whole thrives with more frequent, long-lasting periods of prosperity and suffers more infrequent, shorter periods of economic stagnation. In addition, enabling all people to fully participate in the economy has ripple effects at the household and neighborhood level; People can better respond to the rising costs of energy and food instead of falling deeper into poverty. Residents are also better equipped to respond against extreme weather events or natural disasters, enabling the regional economy to more quickly regain economic stability.

City Strategy

To address persistent levels of Black male unemployment and disparities in household income for families of color, Milwaukee's Green Jobs Accelerator will work with existing workforce institutions and employers to recruit, train, and employ Milwaukee workers with family-supporting wages in growing green jobs sectors. Progress is possible with better coordination among workforce development agencies, training providers, and employers. The Green Jobs Accelerator Big Idea outlines steps Milwaukee can take now to boost green jobs, but achieving the full vision will likely require a significant infusion of state and/or federal resources.

COMMUNITY VOICES

"Addressing climate change gives us an opportunity to fortify community especially in our most vulnerable neighborhoods. Whether its planting trees to lower the heat index and capture water, rebuilding our drinking water and sewage infrastructure, improving roads to capture water where it falls, building and improving parks and their amenities-all of these things can make us more prepared for climate change, provide family sustaining jobs, and improve the quality of life for each and every member."

Subsidized Transitional Jobs are Key

Federal investments in clean energy are an unprecedented opportunity to create family-supporting green jobs. Milwaukee's existing workforce development system continues to leave too many potential workers on the sidelines while employers struggle to fill vacancies. Paying workers while they are being trained in new skills can help to overcome long-standing barriers to employment. A large-scale, transitional jobs program is necessary to meet the moment.

Registered apprenticeship programs also offer an "earn while you learn" opportunity for Milwaukee residents to enter into long-term careers that help address climate change. Apprenticeship programs provide $30 million annually in proven private sector workforce development investment in Wisconsin. Trade unions like IBEW, the Laborers, and others provide paid training and family-supporting wages and benefits on several solar energy projects currently being built in Wisconsin.

Milwaukee's existing workforce training needs to be scaled up to meet current workforce gaps and be made more accessible to low-income workers and underserved communities. This plan establishes a goal of creating green jobs that pay at least $40,000 per year at the entry level. I When projects are directly subsidized by government funds, the City will codify public benefits agreements to ensure that contractors meet these standards.

The Green Jobs Accelerator will be led by the City of Milwaukee and Employ Milwaukee in partnership with Milwaukee Public Schools, training providers, and willing employers. The program will convey information about education, training, and new job opportunities and share resources with a Green Jobs Accelerator network. The mission is to connect individuals with training programs and link training organizations with employers. The Green Jobs Accelerator will support green job opportunities and engage employers in their willingness to hire those who complete vetted and certified/accredited training. Accelerating the growth of the green job workforce and family-supporting jobs requires a multi-prong strategy:

- Build excitement for green jobs and careers
- Clarify training pathways
- Build skills through subsidized training
- Identify transitional jobs with career ladders
- Identify community benefits agreements for public projects
- Promote business development among small and emerging businesses located in or primarily serving economically distressed neighborhoods.

Worker making solar improvements.

Resources for Existing Green Jobs

ECO's Green Jobs web page, found at milwaukee.gov/greenjobs, lists existing resources for jobs including electricians supporting energy efficiency and renewable energy, HVAC technicians, weatherization workers, housing constructors, manufacturers of sustainable technologies, and other professional jobs such as consultants, engineers, and building operators. With additional funding, Milwaukee can expand recruitment outreach and resources. The City of Milwaukee is a member of the U.S. Department of Energy's Better Buildings Workforce Accelerator and can apply national best practices locally.

The Interstate Renewable Energy Council and its partners have developed interactive clean energy career maps (like the one listed below) that highlight the range of green jobs from entry-level positions to more advanced. The City and its workforce development agencies can do more to adapt national green jobs resources for the local environment, help prospective workers understand career opportunities at a high level, determine which local training providers offer relevant training, and then connect trained workers with employers who are willing to hire them.

As an employer, the City of Milwaukee can also improve how it works with local training providers and Employ Milwaukee to fill vacancies and create opportunities for communities of color. Building off the Compete Milwaukee transitional jobs program and Milwaukee Water Works' Work for Water Initiative, the City can expand workforce development opportunities to other areas of City employment in Public Works and beyond.

Progress and Tracking

The Green Jobs Accelerator will utilize a tracking system to provide regular public information on the percentage of green jobs held by people of color. The following community-wide measures of race-based economic inequality will be tracked regularly. (See Chapter 7: Implementation for more details):

- Employment Rate by Race and Gender (Census)
- Median Household Income by Race (Census)
- Median Hourly Wage Rate by Race and Gender (BLS data)

Screenshot of the Solar Career Map at www.irecsolarcareermap.org from the Interstate Renewable Energy Council.

Worker making home improvements.

LEADING BY EXAMPLE

To meet its equity goals while also helping to fill its own vacant positions, Milwaukee Water Works formed the Water Equity Action Team through its partnership with the U.S. Water Alliance. The team forecasts available jobs in the industry and works to recruit a more diverse workforce. It has hosted three water-focused job fairs targeting under-represented communities. Water Works' effort to train, recruit, hire, and promote a more diverse workforce is succeeding because of its partnerships with key water sector leaders like Milwaukee Metropolitan Sewerage District, the Wisconsin Department of Natural Resources, Milwaukee Water Commons, Veola, and other water sector businesses, water-focused higher education institutions, workforce development partners, advocates, allies and friends. Partners organized the One Water Career Fair inviting the public to learn about and apply for jobs in the water sector. Water Works messages that if interested candidates have any kind of skills, or no skills, it wants to hire them and train them.

With the support of a $2 million federal grant, Milwaukee Water Works is partnering with Employ Milwaukee on the Fresh Coast, Fresh Opportunities Initiative to provide a diverse pipeline of talent for water utilities and contractors that support lead service line replacements. 500 underrepresented youth will receive career exploration services and an additional 500 underrepresented job seekers will receive employment and training services. The project will build a more equitable workforce and address the critical need to increase the awareness of quality water utility jobs, especially in the plumbing and construction trades. As a result of this work, Milwaukee Water Works hopes to see more diversity in water utility related jobs, and more wealth and long-term economic prosperity in underserved communities. The process to support equity in water jobs can be applied to green jobs like electricians and related trades.

Green infrastructure planting.

Local Training Providers

Milwaukee already has a number of green jobs training programs that could be more effectively coordinated through the accelerator:

- Trade unions like the **International Brotherhood of Electrical Workers** provide training, family-supporting wages, and benefits
- **Milwaukee Area Technical College** is a pathway to many trades and green jobs, particularly building automation and controls. More can be done to connect workers to their campus in Oak Creek, WI
- The **Wisconsin University System** has expanded offerings in water and energy technology
- The **Midwest Renewable Energy Association** provides solar energy training
- Weatherization workers could be trained and paid more to reduce turnover (recommend $20/hour+) through national certification programs such as the **Building Performance Institute, Inc.**

Accelerating Action with Federal Investment

The City can and should act with the resources it has to improve how we connect and prepare workers for green jobs, but truly transformative change will likely require new investments. With additional investments, the Green Jobs Accelerator will:

- Connect national green job maps to local training providers through an online resource.
- Develop an outreach plan for:
    - High school students
    - Underemployed residents of low-to-moderate income areas and residents of neighborhoods with historically high unemployment rates
    - Incumbent workers
- Operate recruitment centers at physical locations with documented workforce development needs, as identified in the City's Comprehensive Plan.
- Directly hire local workers through subsidized employment and provide entry-level transitional jobs for approximately two days a week while exposing workers to the broader array of career

opportunities and subsidized training.

- Provide direct commercial drivers license training, which is a prerequisite for many green jobs.
- Negotiate and sign agreements with employers of goodwill to hire workers graduating from the program.
- Implement Community Benefits Agreements on related government work and utility-scale projects to employ workers in the private sector.
- Provide entry-level workers and trainees with coaches to match them with careers that fit their skills and interests and work through employment barriers. Coaches can help individuals connect with and complete training, and aid in retention once hired.

Working with Milwaukee Public Schools

Milwaukee's most important workforce preparation opportunity is our schools, including high school.

Elementary and high school is a critical time for the formation of basic skills like reading and math. During this time, young people also explore their interests and develop good work habits like goal setting and time management. Milwaukee's workforce environment and opportunities will be improved by creating clearer, more consistent transitions from high school to post-secondary educational opportunities with technical colleges and other reputable training providers, such as through the **M3 Initiative**.

Efforts to expose young people to promising green careers through the Green Schools Consortium of Milwaukee and trade unions and associations will be expanded. Additionally, Milwaukee Public Schools and other area high schools will continue to recognize that the skilled trades, coupled with adequate preparation, present attractive career alternatives to college for many young people. The school system is encouraged to expand hands-on classroom opportunities to begin the prerequisites for careers in the skilled trades.

Energy efficiency workers.

2. HEALTHY HOME ENERGY UPGRADES

Improve existing Milwaukeean homes to be energy efficient, lead-safe and healthy.

Home energy audit.

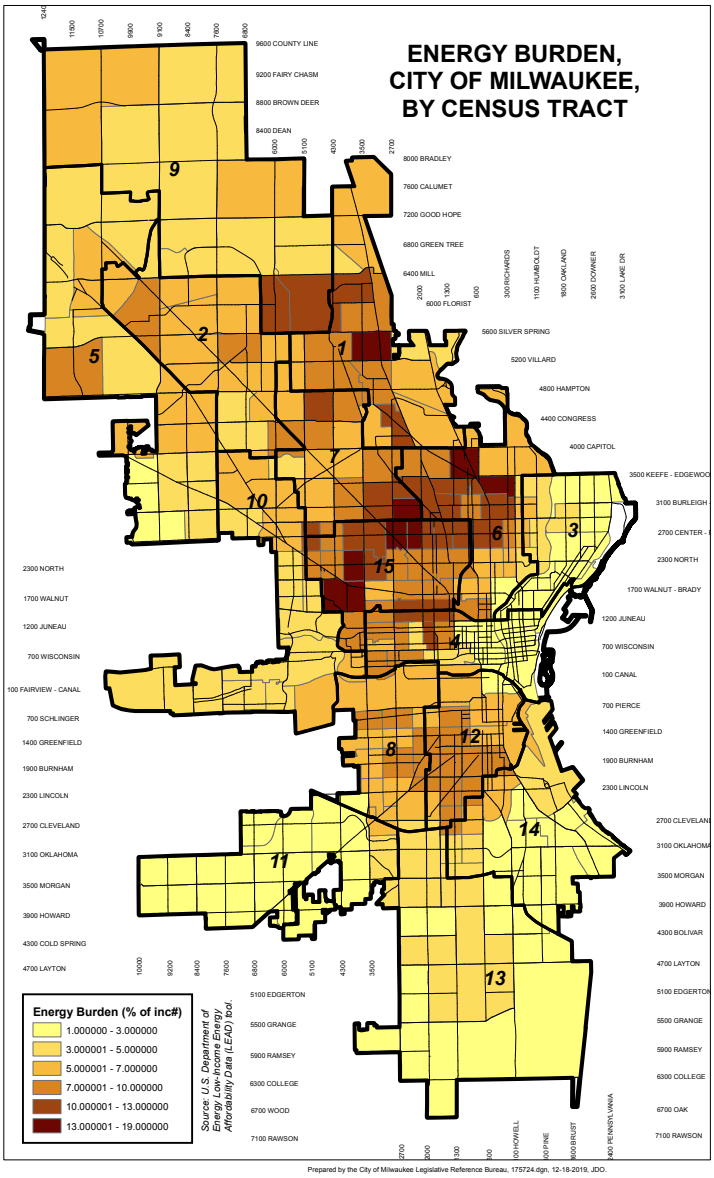
Importance

Improving home energy efficiency is critical to dramatically reducing greenhouse gas emissions, reducing the burden of high energy bills, and improving the health and quality of life for residents. According to the City of Milwaukee 2018 Inventory of Community Greenhouse Gas Emissions, 31% of greenhouse gass emissions were produced by residential buildings by the energy used to heat, cool, and power homes, and appliances. Energy includes electricity generated through burning coal and natural gas in power plants, as well as natural gas used to heat household spaces and water and power gas stoves and dryers. Inefficient homes with poor insulation, outdated appliances, and old heating systems are not only less comfortable to live in, but also result in higher utility bills and more greenhouse gas emissions from wasted energy.

Energy efficiency focuses on using less energy to perform the same task. For example, installing an energy efficient air conditioner can use less energy than an old, failing air conditioner but performs the same job. Residential energy efficiency can take many forms but is commonly associated with the following measures to reduce energy use and waste:

- Installing more efficient heating and cooling systems, appliances, and lighting.
- Improving the building envelope (exterior walls and roof) by adding insulation and air sealing.
- Programmable thermostats that change the temperature while residents are not home.

Reducing energy use through energy efficiency upgrades lowers monthly utility bills. According to a September 2020 report by the American Council for an Energy Efficient Economy titled *How High Are Household Energy Burdens?*, affordable household energy costs should be no more than 6% of total household income.[27] Unfortunately, many residents in Milwaukee are paying more than 10% of their income, and as much as 15-19% of their income, on energy bills due to a combination of low incomes and old, inefficient housing. The **Energy Burden, City of Milwaukee by Census Tract Map** (at right) shows the areas where residents are experiencing high energy costs.

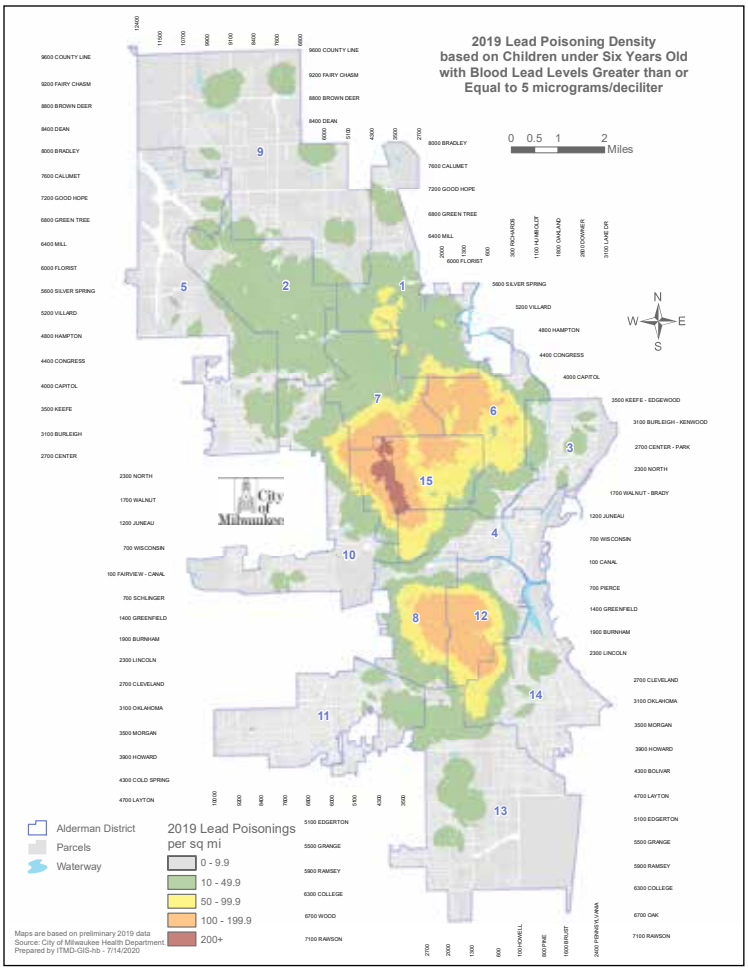


Childhood Lead Poisoning

Childhood lead poisoning is a health crisis that is also tied to Milwaukee's old, deteriorating housing stock and disproportionately impacts children of color in underserved neighborhoods. Lead poisoning is an important issue for Milwaukee residents that intersects with the need for climate action. It is unsurprising that the Milwaukee census tracts with high energy burdens often overlap with the census tracts with the highest levels of childhood lead poisoning, as both issues stem from the need to upgrade homes.

The State of Wisconsin, and Milwaukee in particular, have a very high burden of lead poisoning in comparison to other U.S. cities and states. Prior to the COVID-19 pandemic, approximately 7% of children in Wisconsin had blood lead levels above

the CDC's prior Blood Lead Reference Value of 5 micrograms/deciliter (µg/dL), which is higher than the national average of approximately 4%. In Milwaukee, the percentage of children with blood lead levels of 5 µg/dL and above is consistently 9-10%; however, in the most burdened census tracts, that percentage can be 20-30% of children lead-poisoned. City leaders have prioritized addressing this critical near-term crisis. Improving homes by removing lead hazards and addressing energy efficiency at the same time presents new opportunities for collaboration.



Other Housing Issues

Milwaukee's housing stock in disinvested neighborhoods of color faces a range of other structural and health challenges, including leaking roofs and outdated electrical wiring. Over time, government agencies and non-profit organizations have attempted to address these problems with a patchwork of housing repair programs. The result has been confusing, difficult-to-navigate eligibility requirements that vary by program. Building navigation tools across housing programs presents an opportunity to create efficiencies and improve customer service. Improving the energy efficiency of existing housing stock will save households money on both operations and maintenance costs, freeing up funds for other necessities like rent, food, and medical care.

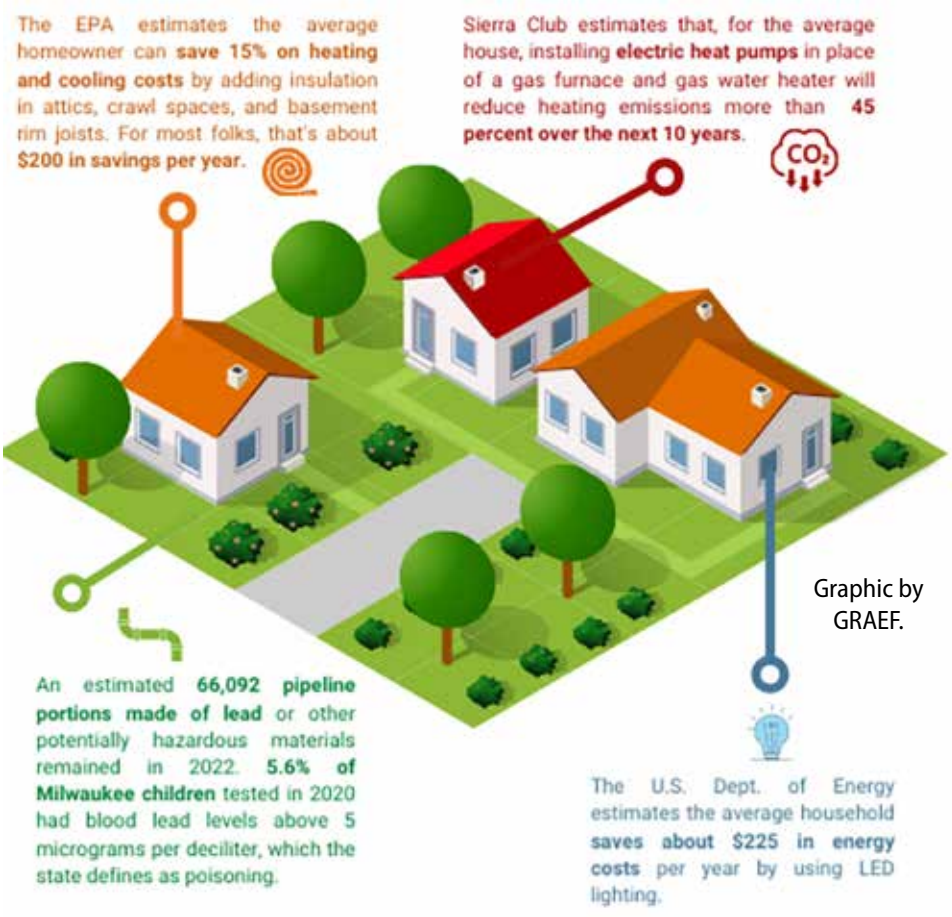
COMMUNITY VOICES

"If we can implement a program that provides at a discount, energy efficient appliances like heat pumps, stoves, electric water heaters, let's distribute those to the people who are in most need."

"We need to ensure that whatever solutions we adopt to combat climate change also impact racial justice. Examples include green jobs training programs, increased and improved public transit, energy efficiency upgrades in rental homes in predominantly Black and Latino neighborhoods, lead abatement in those homes, increases in green spaces and tree cover in neighborhoods that lack access to parks and playgrounds, and measures to mitigate extreme heat events and their impact on communities of color."

"I think that there just needs to be a concentrated effort to improve the quality of the housing stock in the most needy neighborhoods. And these are things that could have a huge effect on carbon emissions, too."

Milwaukee Energy Costs Overview



Graphic by GRAEF.

Equity

Healthy home energy upgrades increase equity by creating improved home environments for all Milwaukeeans. Milwaukee children are a top priority because the impacts of lead poisoning can have devastating, life-long impacts on their cognitive development. Lead poisoning also disproportionately impacts Black and Latino children in Milwaukee. Moreover, while improvements have occurred over the past two decades, the highest energy burdens continue to be faced by Black and Latino households.

Energy-efficient homes also include benefits such as staying warmer in the winter and cooler during summer months. Households will be more comfortable during frigid winters and summer heat waves, which will be more common due to the extreme and frequent impacts of climate change in Milwaukee. Energy efficiency can also increase home value, providing an opportunity for low-income residents to build wealth.

Solar Energy

Milwaukee has been a leading city working to increase access to solar energy in Wisconsin. Adding solar energy systems to existing homes can strengthen energy independence and home value while reducing the costs paid to an electric utility for energy in the long-term. The Milwaukee Shines Solar Program has reduced permitting and other soft costs for solar, provided affordable financing to qualified homeowners, and supported bulk purchasing through the Group Buy Program to bring down the total cost of solar. The City has also supported solar projects in communities of color, including Alice's Garden, Walnut Way's Wellness Commons, and Fondy Farmers' Market. In addition, the City of Milwaukee advocates for new options to help all customers access solar, regardless of income. Expanding the benefits of solar to underserved communities requires continued advocacy for statewide policy changes that support lease financing of and new community options for customers that do not have a suitable site for solar.

Resilience

Home improvements are necessary to build resilience to the more extreme and frequent weather events caused by climate change. The Milwaukee Metropolitan Sewerage District provides practical tips to help homeowners reduce the risk of flooding and basement backups in their home, as well as the Pipe Check Program at mmsd.com/what-you-can-do/manaing-water-on-your-property. Electric air-source heat pumps, geothermal ground loop systems, and rooftop solar all provide home heating and cooling with lower greenhouse gas emissions. Building insulation is one of the simpler but effective housing retrofit tools that should be broadly implemented. Improving a home's thermal envelope (any structure that helps control interior temperature) with better insulation is a low-cost, beneficial improvement that can prevent heat and air conditioning from escaping. As prices come down, solar energy coupled with battery storage offers the opportunity to help homeowners keep the lights on during grid outages.

Rooftop solar installation. Photo Credit: MREA

City Strategy

The strategies explained in this Big Idea and the Chapter 3: New Net Zero Energy Homes will result in an estimated 1,250 homes being upgraded or built every year until 2050, improving the standard of living for the 85,000 people experiencing high energy burdens. [28]

Continue and Expand Current Weatherization and Energy Efficiency Programs

Milwaukee has a range of weatherization, energy efficiency, and solar programs, including the low-income Weatherization Assistance Program, Milwaukee Energy Efficiency Program, Milwaukee Shines Solar Program, and statewide Focus on Energy Program—which provides rebates for energy efficiency upgrades. The Milwaukee Energy Efficiency Program provides financing that compliments the state's Focus on Energy rebates and federal incentives by supporting homeowners citywide who cannot afford the upfront costs to improve their home. The City will continue to expand these existing programs by utilizing federal funds.

Align Energy Efficiency and Lead Paint Abatement

Milwaukee leaders have dramatically increased funding for residential lead abatement and other home repair programs through the City's allocation of American Rescue Plan Act dollars. Funding is primarily targeted toward neighborhoods with a high percentage of historic disinvestment and

communities of color. The historic influx of federal funds to support housing repairs coupled with new incentives through the 2022 Inflation Reduction Act provides Milwaukee with an unprecedented opportunity to advance energy efficiency and healthy home upgrades.

To meet the moment and bring these efforts to scale, the City of Milwaukee, following the recommendations of the City-County Task Force on Climate and Economic Equity, is developing a unified Healthy Home Energy Upgrades strategy. In 2022, the City of Milwaukee contracted with the Green and Healthy Homes Initiative, the nation's foremost expert on integrating energy efficiency retrofits with lead paint abatement work. The City's Environmental Collaboration Office, Milwaukee Health Department, Weatherization Assistance Program providers—including the Social Development Commission, and other housing repair programs—are working together to coordinate a more holistic approach to home repair. The approach will include strategies available both to homeowners and renters. Through better coordination, the City aims to more efficiently and effectively support improvements for households of color most at risk for lead poisoning and high energy bills.

Implementation of the energy efficiency and healthy homes strategy is already underway. In October 2021, the Milwaukee Common Council allocated approximately $26.3 million in American Rescue Plan Act funding to reduce lead poisoning by abating lead paint hazards in 850 of the highest priority housing units, providing necessary medical and case management services to lead-poisoned children, increasing blood lead level testing, and providing resources to parents, among other efforts. This allocation of additional resources was coupled with a revision to the City of Milwaukee's Lead Poisoning Prevention and Control Regulations (Section 66-22

Solar panels on a Milwaukee home.

of the City of Milwaukee Code of Ordinances) in July 2022 to better protect tenants in homes where lead paint hazards have been found and to strengthen the City's enforcement powers to hold property owners accountable for removing lead hazards from the homes they rent.

The Council further approved $2 million to audit and complete energy efficiency upgrades in units being abated of lead hazards, $3 million to help develop the workforce needed to complete large-scale home improvements, and $15 million to renovate 150 City-owned homes for lead safety and energy efficiency to prepare them for resale. Additional planning work in 2023 and beyond will be necessary to incorporate the new opportunities from the Inflation Reduction Act.

Develop a Long-Term, Flexible Funding Strategy for Healthy Home Upgrades

While the funding resources provided by ARPA, the Infrastructure Investment and Jobs Act, and the Inflation Reduction Act are significant, the scale of healthy home renovations needed in Milwaukee will require more than government funding alone. Existing home weatherization and lead paint abatement programs are unable to cover needed pre-weatherization work in a large number of Milwaukee homes each year. When pre-weatherization work, like roof repairs, are uncovered, they present a barrier to the weatherization or lead abatement work being done. Statistics from one local weatherization agency indicate that in 2019, 46% of households that applied for weatherization of their homes could not complete it due to pre-weatherization issues. Such repairs impede a number of homes from being abated for lead paint hazards every year, as well. The City of Milwaukee has contracted with the Green and Healthy Homes Initiative because it has experience assisting cities and states in developing flexible healthy home repair funds that combine government dollars with contributions from philanthropic sources, health care providers, contractors and trades, Federally Qualified Health Centers, and other relevant sources. With greater flexibility, the fund could also provide support for necessary pre-weatherization work.

Sherman Park neighborhood. PhotoCredit: Steve Bell

Coordinate Housing Repair Programs and Simplify the Application Processes

In addition to improving the coordination of programs, Milwaukee will make better use of technology to help residents understand existing housing repair programs, eligibility requirements, and how to access them. All City of Milwaukee housing repair programs will work on a unified, online navigation tool that will make it easier to connect residents to relevant programs and coordinate outreach with the Resilience Ambassadors described later in this plan. Where practical, the City will explore better coordination or consolidation of its various home repair programs while respecting the different customers its serves.

Electrify Homes

The City and its partners will lay the groundwork for beneficial electrification of homes. Achieving net-zero greenhouse gas emissions by 2050 requires replacing natural gas in homes for heating, cooking, and clothes-drying with affordable electric options powered by carbon-free electricity sources. Recent advances in cold-climate air source heat pumps, heat-pump hot water heaters, and induction stoves make this feasible. Moreover, the Inflation Reduction Act provides significant funding assistance for households to electrify, with more support for lower-income households. The City, along with its partners, will promote the availability of incentives for electrification and continue to integrate support for electrification into existing programs, such as the Milwaukee Energy Efficiency Program. Many policy, technology, and financial strategies will need to effectively come together over time to make electrification of homes truly beneficial for both the environment and residents. ECO will be working proactively on these efforts with our partners in the city and the state. Net-Zero Energy Homes are discussed further in the next Big Idea.

Advocating for State, Federal, and Utility Energy Efficiency Funding and Programing

ECO will continue to intervene in relevant dockets and cases at the Wisconsin Public Service Commission through the Wisconsin Local Government Climate Coalition to encourage improved energy efficiency, weatherization, and pre-weatherization programs and policies; This includes support and coordination for the statewide Focus on Energy Program alongside local programs. The City of Milwaukee may also advocate for We Energies to create an on-bill tariff option for customers. Such on-bill tariff programs remove financial barriers for households to make energy efficiency improvements by allowing them to pay for energy and cost-saving improvements on their utility bills over time rather than upfront. The City of Milwaukee will also continue to advocate for more federal and state resources.

Cross-Cutting Recommendation: Supporting the Green Jobs Accelerator

Upgrading buildings will require more green contractors and workers than are currently available; This represents an opportunity to focus on recruitment, training, and employee retention to provide greater career opportunities for workers of color. HVAC technicians and electricians will certainly be needed, as well as laborers and carpenters for important insulation and air sealing improvements. Additional lead paint abatement work will require workers for window replacement, paint removal, and hazardous waste cleanup. Energy contractors, such as Green Homeowners United, have been working with labor unions to explore workforce training opportunities in energy efficiency and lead paint abatement. Maintaining a high-quality workforce of insulation workers, HVAC technicians, and other energy efficiency workers will require fair wages of $20+/hour. The intersection of workforce development and home remediation is addressed in the previous Green Jobs Accelerator Big Idea.

3. NEW NET-ZERO ENERGY HOMES

Build new affordable, durable, energy efficient housing for Milwaukee neighborhoods, promoting for infill development and homeownership for low-to-moderate buyers.

Modular housing construction.

Importance

Affordable, quality housing is a huge need for Milwaukee families. The city has thousands of existing homes that should be maintained and improved for energy efficiency and health, as outlined in Big Idea #2: Healthy Home Energy Upgrades. In addition to preserving existing housing, when practical, Milwaukee must build new homes to reinvigorate neighborhoods with long-term, affordable, and sustainable housing stock.

Milwaukee has over 2,000 buildable, vacant lots in residential neighborhoods where old, unsafe houses were demolished and new homes were never built. As a populous city, space is limited in Milwaukee; Developing residential vacant lots citywide is both environmentally and socially sustainable. According to the EPA, building on infill sites is a form of environmental conservation because it reduces pressure on outlying lands serving important environmental and ecological functions. Denser communities also support greater pedestrian-friendly areas and encourage less driving. The major challenge in redeveloping vacant lots with new housing is the gap between the amount banks are willing to finance for lower housing values and the cost to build homes using the traditional method of "stick-built" construction.

According to Milwaukee's 2018 Community-Wide Greenhouse Gas Inventory, 2.4 million tons of greenhouse gas emissions were produced by the residential sector. Overall, direct emissions from homes account for 31% of all greenhouse gas emissions in the city. In Milwaukee, as in other cities across the country, fossil fuel energy costs put a larger burden on low-income households. As solutions are sought to generate new housing in Milwaukee, it is essential homes are climate-friendly. That means designing houses that are extremely energy efficient and provide heating, cooling, and other energy needs by clean, renewable sources. Further, housing can produce through renewable energy sources the same amount or more energy than it consumes, a concept called a net-zero home.

In Milwaukee, net-zero homes will be designed for high energy efficiency and support enough on-site solar panels to completely power and heat the home. Net-zero homes will feature energy-efficient appliances and heating systems that run on electricity rather than natural gas; Air-source heat pumps alone can satisfy heating and cooling needs in a properly insulated home. Replacing direct fossil fuel use with electricity in a way that reduces overall emissions and energy costs is referred to as beneficial electrification. The U.S. Department of Energy offers a Zero Energy Ready Homes Program featuring standards that can put Milwaukee homes on the path to being carbon-neutral by 2050.

Stay up-to-date on this work at milwaukee.gov/netzeroenergyhousing.

COMMUNITY VOICES

"Implementing solar energy in low-income areas would be the first step to equity. Research on energy burdens in Wisconsin shows that low-income areas may be disadvantaged even further if high-income, majority-white areas receive access to solar or wind first. How does the City of Milwaukee plan to grant access to those who need it most, first?"

"There needs to be a concentrated effort to improve the quality of housing stock in the most needy neighborhoods. These are things that can have a huge effect on carbon emissions, too."

"Milwaukee could serve as a manufacturing center and marketing hub for a number of new energy generation and energy efficiency technologies."

Equity

Too many Milwaukee families lack access to affordable, sustainable housing. This is due to a number of factors, including a shortage of living-wage jobs and quality housing stock in low-income neighborhoods. Making homeownership more affordable means improving both sides of the housing equation by reducing the cost of new construction and increasing incomes for people of color. Housing affordability also requires reducing housing costs, which includes lowering energy costs.

The city has suffered a 40% decline in manufacturing jobs since 1970. Since the 1980s, service sector jobs that traditionally pay lower wages experienced explosive growth. In addition, 42% of city housing stock was built before 1940. As homes continued to age, the COVID-19 pandemic accelerated housing insecurity. City homeownership has declined by 14% in the past 15 years. Now, just 37% of housing units are owner-occupied, including multi-family housing.

The Black homeownership rate is half that of white households. Lower incomes and high housing costs have resulted in a housing affordability disparity that falls along racial lines. Simply put: Milwaukee, like many other metropolitan areas, has unacceptable racial disparities in both income and housing.[29]

Resilience

Climate migration coupled with Mayor Johnson's goal of growing Milwaukee's population to 1 million people underline the need to quickly produce affordable and sustainable housing. New homes will be built with these goals in mind: (1) Reduce environmental impacts, (2) Be affordable, and (3) Provide added health and social benefits to the residents. Prioritizing infill development and multi-family units will result in more efficient land use. Additionally, a major climate risk is flooding from severe storms. Milwaukee can look to build new homes with first floor water storage systems instead of basements to reduce costs and sewer backups.

Aerial view of Milwaukee. Photo Credit: Steve Bell.

City Strategy

ECO is working on a bold strategy for new, net-zero energy homes to increase climate solutions, equity, affordable housing, and green manufacturing jobs. Built on existing vacant lots citywide, these homes will be designed to be all-electric, affordable, durable, and fit within the architectural character of various neighborhoods. The project will utilize off-site construction to dramatically scale up housing construction, reduce costs, and create year-round-employment opportunities. Major housing components will be built in a factory, which allows for year-round construction instead of weather-dependent scheduling. Off-site construction also utilizes precision equipment to assemble housing components at scale that range in complexity from simple, two-dimensional wall sections to more complex, three-dimensional, modular systems. The process will minimize emissions during the transportation of materials from the factory to home sites.

The project will develop a model for infill housing using components made in a new Milwaukee factory, preferably a central city or north side location where jobs are needed most. The project envisions a public-private manufacturing partnership to design, prototype, and build affordable, durable, and sustainable housing in the 30th St. Corridor while creating year-round, family-supporting jobs. Factories of the kind that make these homes are in business primarily on the East and West Coasts, with little presence in the Midwest. Milwaukee aims to fill this gap by becoming a center of expertise and capability for net-zero energy housing construction.

Modular housing being transported to the build site.

LEADING BY EXAMPLE

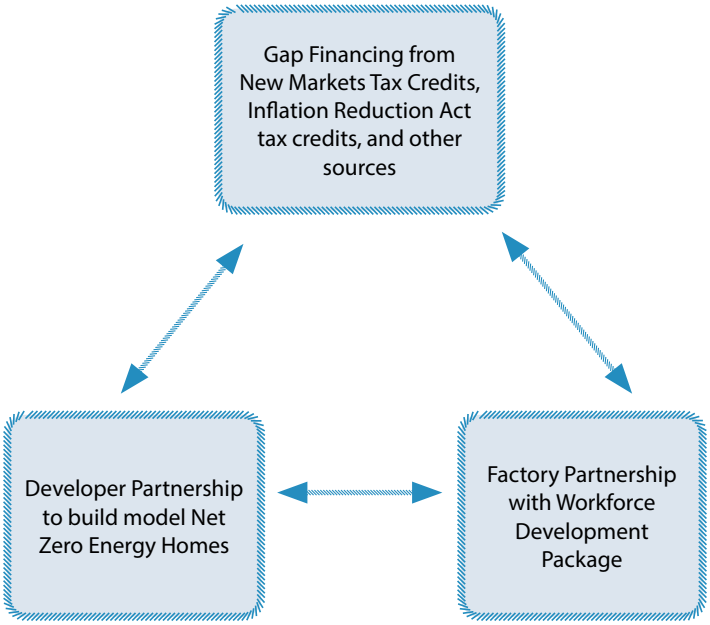
This program is an outgrowth of the Business Case developed for the Bloomberg Philanthropies Global Mayors Challenge and the City-County Task Force on Climate and Economic Equity. Major milestones to date include:

- In 2021, ECO presented the project to the U.S. Department of Energy and Advanced Building Construction Collaborative powered by the Rocky Mountain Institute.
- Next, ECO worked with University of Wisconsin-Milwaukee School of Architecture and Urban Planning students to develop concepts.
- Then, ECO issued a Request for Information to firms nationally to gauge interest and get feedback on the program idea. The City received interest from seven national manufacturers and innovation teams interested in establishing a factory in Milwaukee through this partnership. The envisioned public-private partnership would combine private sector manufacturing expertise with public financial support in developing a pipeline of new housing orders, workforce development, and design and permitting.
- In addition, ECO received a $25,000 EPA grant to develop a demand-side financing strategy for residents to purchase houses built from the net-zero housing factory.
- Finally, $1 million in ARPA dollars has been allocated to the project.

Milwaukee's participation in the national Advanced Building Construction Collaborative informed the development of this project. ECO worked with the University of Nebraska-Lincoln, a technical assistance provider of the Better Buildings Workforce Accelerator, to create a Preliminary Workforce Development Plan for this project under a technical services agreement paid for by the U.S. Department of Energy. The preliminary plan recommended Training for Manufactured Housing Construction (TRAMCON) as a possible model that has been successful in other states. In addition to employing program participants, employers, and industry partners may serve as program advisors, providing input on training and the relevance of credentials. Employers and industry partners may include panelized and modular manufacturers, single- and multi-family modular homebuilders, modular building associations and trades organizations, and labor unions.

A three-pronged approach kick-started by the $1 million ARPA investment and $25,000 EPA financing grant will make net-zero energy homes a reality in Milwaukee.

Net-Zero Energy Housing Project Flow Chart



Modular housing rendering. Image courtesy of University of Wisconsin-Milwaukee - Designer Dongmin Yun.

1. Identify a Developer

First, the City, through a Request for Proposals (RFP), will identify a developer to build model net-zero energy homes. The model will serve as a proof of concept for the technology, architecture, and market for the homes. If the model homes are successful, the developer and City will work to scale up the construction and sale of dozens of additional new homes annually.

2. Identify Financing

Secondly, the project is identifying creative sources of financing to fill the gap between the cost to construct new, single-family homes or duplexes and traditional mortgage financing. This may include New Markets Tax Credits for housing, tax credits and other new financial supports recently approved through the Inflation Reduction Act, and possibly other financing resources such as the City's Housing Trust Fund and Wisconsin Housing and Economic Development Authority home loans.

3. Form a Manufacturer Partnership

Finally, the project envisions a new manufacturing facility, ideally in the Century City area. Off-site housing manufacturing provides year-round employment opportunities and an ergonomically-friendly environment. Through an integrated design process, the developer will work with the manufacturer to develop designs that meet market demands with cost-effective production and replication. The factory will explore providing mass customization economies of scale through industrial construction that also offers customers variety in the fit and finish of homes.

Housing Construction. Photo Credit: Jens Behrmann.

4. COMMERCIAL BUILDING ENERGY BENCHMARKING + BUILDING PERFORMANCE STANDARDS

Improve energy efficiency in commercial buildings by tracking energy use and updating minimum requirements in existing buildings.

Executive Center, Participant of the Milwaukee Better Building Challenge.

Importance

In the past 10 years, Milwaukee has experienced an exciting surge of major commercial building developments like Fiserv Forum and the Northwestern Mutual Tower and Commons. In addition, many of the city's older commercial and industrial buildings have been repurposed and converted into residential apartments and other uses. Commercial buildings comprise approximately 18% of the United States' total energy consumption[30] and in 2018 accounted for 23% of total greenhouse gas emissions in the City of Milwaukee. Existing commercial buildings and multi-family properties with four or more units should focus on reduce energy use while improving indoor air quality. For the purposes of this section, commercial buildings are divided into new building developments and existing buildings.

New Buildings

Commercial buildings must adhere to established building codes, which set regulations for design, construction, alteration, and maintenance. Building codes include energy codes, which specify regulations for the energy efficiency of a building and its systems. The State of Wisconsin Department of Safety and Professional Services establishes the building code for the entire State. Per Wisconsin law, municipalities are not allowed to set higher energy efficiency requirements in local building codes, something that other municipalities across the U.S. are allowed to do. As of December 2022, the minimum energy efficiency requirements of the Wisconsin building code have not kept pace with international standards.

According to the U.S. Department of Energy, as of 2022, the energy conservation chapter of the Wisconsin commercial building code is equivalent to American Society of Heating, Ventilation, Refrigeration, and Air- Conditioning Engineers (ASHRAE) Standard 90.1 2010, released 12 years ago. The Wisconsin Commercial Building Code Council is in the process of proposing a newer code that is equivalent to ASHRAE Standard 90.1 2019. Adopting the new code will reduce energy use of new commercial buildings by approximately 19% compared to a building built following the current code.

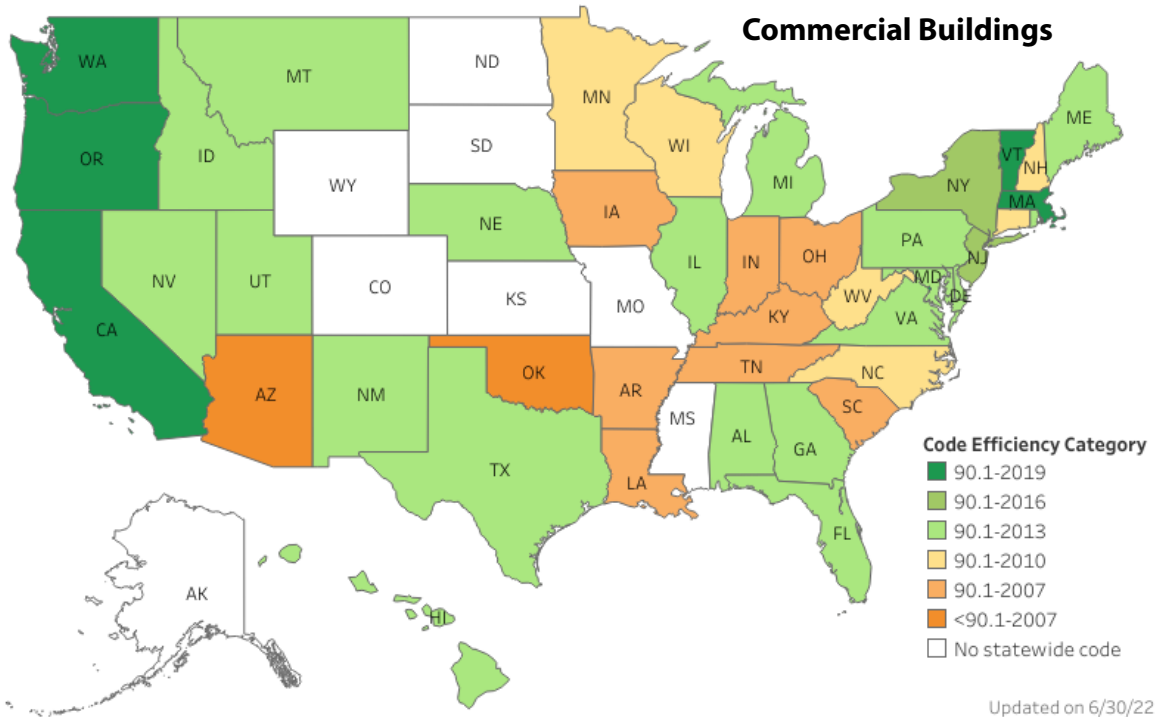
Greywolf Partners, Participant of Milwaukee Better Building Challenge.

It is important to highlight that the code and standards released by ASHRAE or the International Energy Conservation Code (IECC) define minimum requirements only. Builders are permitted to build to higher energy efficiency standards as long as the base code is being met. These model standards and codes are updated every three years with the aim of reducing building energy use in each release. When new energy conservation standards are released, the Pacific Northwest National Laboratory (PNNL) quantifies the impact of the building code on energy cost savings and job creation. The PNNL has demonstrated through many of its analyses that states adopting newer energy conservation standards for new buildings and existing buildings not only save energy but create jobs.

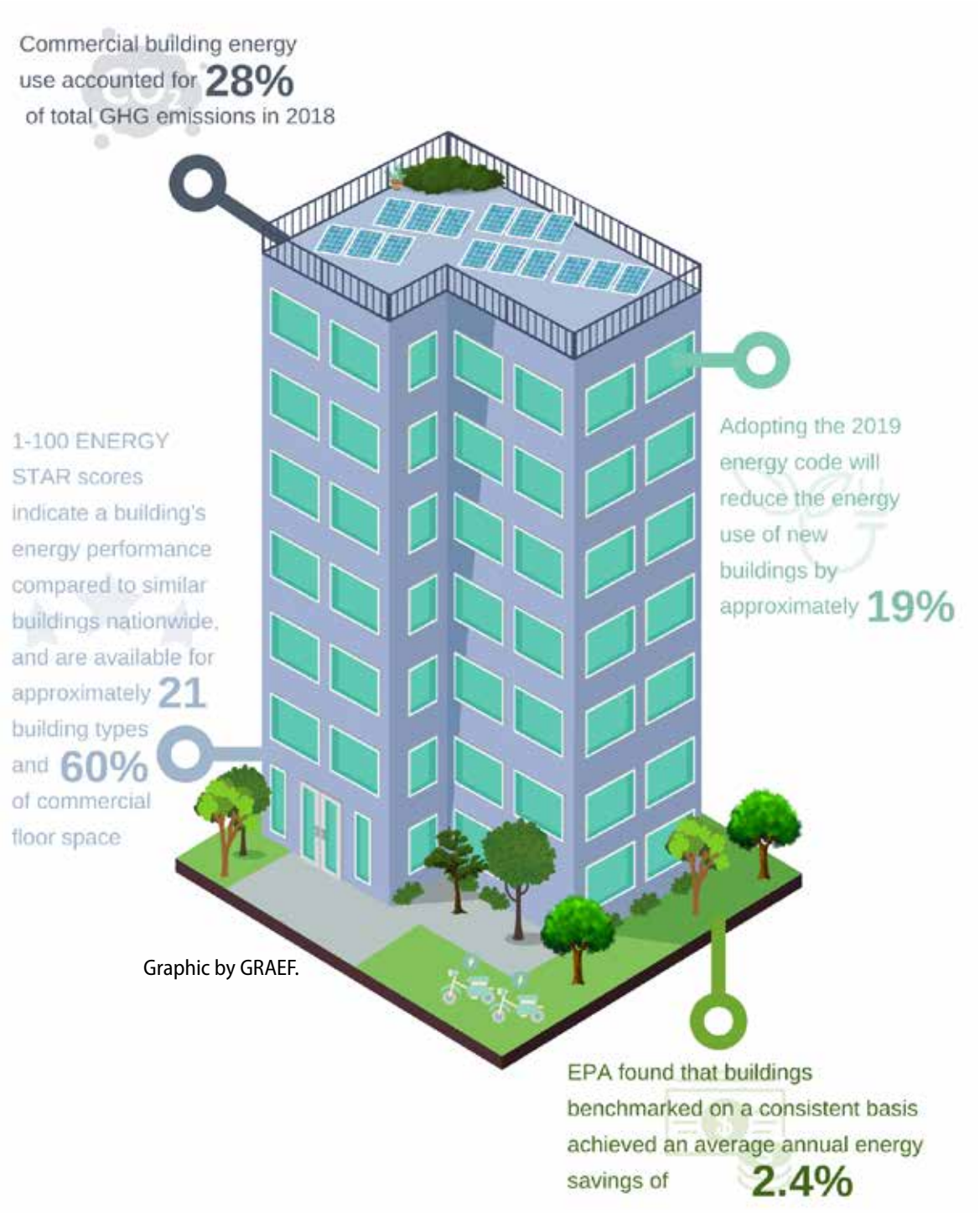
Existing Buildings

Milwaukee's existing building stock comprises buildings of different sizes and ages. Buildings constructed during different years were designed according to older and less energy efficient building codes than today's standards. The first building energy conservation standards were developed in the 1970s as part of the Energy Policy and Conservation Act as a response to the 1973 oil crisis. Some buildings have been repurposed, some were upgraded to be more energy efficient, and others deteriorated due to poor maintenance or lack of maintenance.

In Milwaukee, the statewide Focus on Energy Program offers rebates for energy efficiency projects in existing buildings. Offerings include specialized energy advisors to help building owners and managers identify ways to reduce energy use in commercial buildings. The City of Milwaukee has worked to make it easier for building owners to make energy efficiency improvements through its Better Buildings Challenge voluntary leadership program and Property Assessed Clean Energy (PACE) financing program. For the City to meet the moment on climate action, these voluntary programs may no longer be sufficient. Cities across the country are establishing new policies to reduce carbon emissions from commercial buildings while reducing energy bills and creating local jobs.



"Status of State Energy Code Adoption" commercial code map by the Office of Energy Efficiency & Renewable Energy.



Graphic by GRAEF.

COMMUNITY VOICES

"Energy inefficient buildings that lack the necessary green space to support outdoor learning and engagement are a huge problem throughout Milwaukee."

"By reducing our demand for energy, we help to clear the air and lower the rate of respiratory and other diseases."

Equity

New building developments and existing building upgrades create a variety of new jobs in the fields of construction, HVAC (heating, ventilation and air conditioning), plumbing, electrical, and engineering. Transforming the City of Milwaukee into a sustainable city with high-performance buildings will require a larger workforce than currently exists. The strategies within this idea will support the creation of energy efficiency jobs that advance social equity through inclusive training programs and resources. Moreover, improving the energy efficiency of multi-family apartment buildings with four or more units can provide more comfortable, healthier living environments that lower energy bills for tenants. An equitable workforce plan that engages training providers, employers, and government agencies is critical to this overall strategy. Technical expertise and other resources necessary for training and development can be provided by local educational organizations like the University of Wisconsin-Milwaukee and Milwaukee Area Technical College, as well as the local chapters of organizations like ASHRAE and the U.S. Green Building Council (USGBC). like ASHRAE and the U.S. Green Building Council (USGBC).The strategies within this idea will support the creation of energy efficiency jobs that advance social equity through inclusive training programs and resources. Moreover, improving the energy efficiency of multi-family apartment buildings with four or more units can provide more comfortable, healthier

Resilience

Building owners can improve the resilience of their buildings as part of broader projects. For example, Wisconsin state law that governs PACE financing programs was updated in 2022 to include resiliency projects intended to improve storm and wind durability/resistance, assist in fire suppression, or mitigate flood damage (e.g., green infrastructure for stormwater management). In addition, Milwaukee's PACE Financing Program supports energy efficiency or reliability improvements, which include energy storage, backup power generation improvements, or upgrades that facilitate participation in a microgrid. These projects can make Milwaukee's buildings more resilient to extreme storms and associated area power outages.

City Strategy

Locally, the City of Milwaukee is prioritizing a benchmarking policy, Building Performance Standard (BPS), and improved financing for smaller commercial properties. ECO continues to advocate statewide for improved building codes alongside other local governments.

Commercial building benchmarking policies are a market-based strategy built on the theory that a market works best when performance is transparent and easily comparable. Chicago, Columbus, Indianapolis, Des Moines, Kansas City, and Ann Arbor are among other Midwestern cities that have implemented building benchmarking policies. Benchmarking ordinances are a common first step to more impactful strategies. Cities that have implemented benchmarking policies report a 2.4% average annual energy saving improvement for the next three years, or a total of 7.2% savings.[31] Based on the City of Milwaukee's 2018 Greenhouse Gas Emissions Inventory, this could mean an approximate decrease of 54,536 tons of greenhouse gas emissions annually.

In January of 2022, Mayor Cavalier Johnson signed Milwaukee on to the White House Council on Environmental Quality's National BPS Coalition, which states that "Building performance standards are state and local laws that require existing buildings to achieve minimum levels of energy or climate performance. Working in tandem with new construction energy codes, these policies empower state and local leaders to deliver on their energy, and equity goals through accelerated retrofits."

Benchmarking Policy and Building Performance Standard

Since 2015, the City of Milwaukee has encouraged commercial building owners to voluntarily set energy efficiency goals, track progress, and report energy usage as part of the Better Buildings Challenge Program. The *Climate and Equity Plan* calls for development of a new benchmarking ordinance that would require large commercial buildings to report energy use annually in the free Energy Star Performance Manager. By reporting energy use, large commercial building managers will start the process of tracking their building's energy performance, a practice that can inspire

Milwaukee Public Library's Green Roof.

LEADING BY EXAMPLE

Since 2012, the City of Milwaukee has championed the U.S. Department of Energy's Better Building Challenge with the goal of improving energy efficiency of commercial, public, industrial, and residential buildings by at least 20% over ten years. The initiative features the participation of 133 buildings in the city. The City of Milwaukee's commitment to improving energy efficiency in commercial buildings was recognized by the U.S. Department of Energy as a model for other communities.

In Milwaukee, the Better Building Challenge established a voluntary benchmarking program that provided free energy assessments and offered Property Assessed Clean Energy (PACE) Financing. Over $40 million of energy efficiency projects have been financed through the City by leveraging private capital. Also through this program, the City of Milwaukee provided training, technology transfer, and workforce development with the help of local organizations such as the Milwaukee Area Technical College.The City leads by example through a focus on energy efficiency in municipal facilities, including major energy efficiency projects at Milwaukee Public Library locations and fire stations. Learn more at milwaukee.gov/PACE.

energy efficiency improvements. The specifics of the ordinance will be developed with stakeholder engagement from the commercial real estate community and other affected stakeholders.

In addition to creating and enacting a benchmarking ordinance, the City will develop a stakeholder engagement process and plan to phase a Building Performance Standard (BPS) or related policies to support energy efficiency in commercial buildings. Alternatively, the City could consider other options such as building tune-up policies, to spur energy efficiency improvements at relatively low cost to commercial building owners. In implementing a commercial building benchmarking strategy and other commercial building policies, the City will:

- Engage affected stakeholders such as commercial building managers and front-line communities to inclusively design and implement equitable BPS, complementary programs, and policies.
- Develop a plan for phasing in the BPS over time to allow property owners a chance to benchmark properties and plan.
- Implement the benchmarking ordinance and BPS through ECO in collaboration with the following partners for critical success:
    - The Institute for Market Transformation : a non-profit organization with the experience and knowledge to develop and implement a building performance ordinance focusing on health, equity, inclusion and economic opportunity.
    - ASHRAE: a non-profit organization that develops all standards used nationwide for high-performance buildings moving to zero-energy.
    - Milwaukee Area Technical College: a local educational institution to provide training, technology transfer, and workforce development.
- Establish a call center resource to help building owners understand the requirements of the new policies. If possible, the call center should be established in conjunction with other communities implementing similar policies as a way to share costs.
- Provide continuous programs that advertise, educate, and report successes. These are key activities to socialize and guarantee acceptance of the new ordinances in the city.
- Explore and provide guidance on building electrification for commercial buildings (e.g., fuel switching from natural gas boilers to efficient heat pump systems).
- Provide community education symposiums on the issues of climate change, how the new ordinances would work, and how the community would benefit.
- Target adoption of a new policy by Earth Day, April 22, 2024.

Financing for Small Commercial Buildings

The City has deployed innovative financing programs to help homeowners and commercial businesses finance energy efficiency improvements; however, more work needs to be done to support smaller commercial properties like multi-family buildings and churches with energy retrofit projects. These smaller projects ranging in price from $25,000-$75,000 are often overlooked by PACE capital providers. The City and its partners will explore deploying new financial resources from the Inflation Reduction Act, such as the possibility of a green bank, to fill this need in the community.

SECONDARY STRATEGY: A BETTER STATEWIDE ENERGY CODE

The City of Milwaukee and interested stakeholders should continue to advocate through the Wisconsin Local Government Climate Coalition for the State of Wisconsin to update commercial and residential building codes to the latest International Energy Conservation Code and ASHRAE Standards 90.1 without amendments. Advocacy should be ongoing to ensure Wisconsin is a leader in centering energy efficiency in the building code. The City is also supportive of the recently reconstituted Wisconsin Advisory Council on Building Sustainability to inform changes to the building code. Locally, the City will ensure that the energy building code is adequately enforced.

Aerial view of Milwaukee.

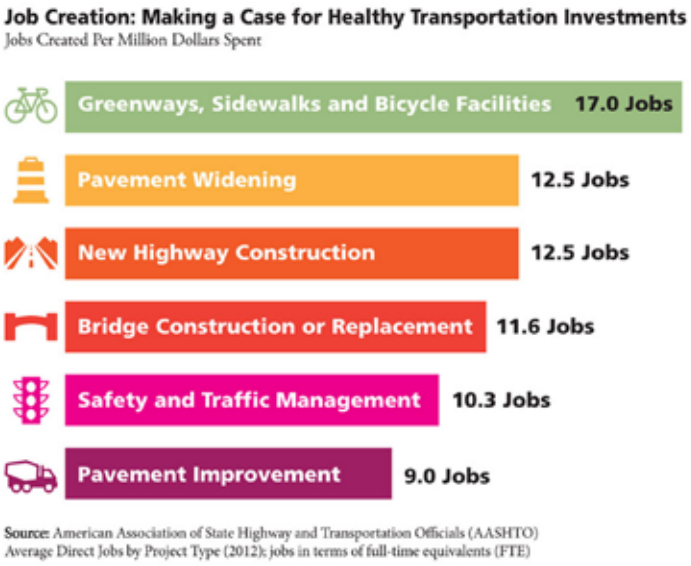
5. PEOPLE-CENTERED TRANSPORTATION AND URBAN DESIGN

Reduce the total usage of passenger cars, SUVs, and light trucks.

Milwaukee County Bus.

Importance

Nationally, the transportation sector creates more than a third of greenhouse gas emissions, making it the single largest contributor to climate change in the U.S.[32] An estimate by ICLEI indicates that transportation contributes 30% of greenhouse gas emissions in Milwaukee County and 21% in the City of Milwaukee. More than half of the emissions from the transportation sector are created by passenger cars, SUVs, and light-duty trucks. After decades of urban sprawl, the U.S. has the distinction of being a world leader in vehicle miles traveled (VMT) per capita, and Milwaukee is not an outlier to this trend. In fact, 71% of commuters drive to work alone in Milwaukee.[33] VMT is a measure of the amount of travel for all vehicles in a given period, typically one year. The focus of this section is to reduce VMT, which predominantly focuses on reducing the number and duration of passenger-vehicle trips.



Car-dependent neighborhoods lock us into a baseline of harmful emissions while creating other negative climate impacts in the process. Society's love affair with cars, along with decades of transportation planning that prioritized speed and individual mobility over access for everyone, has come at an enormous environmental cost. To meet the City's goals of reducing greenhouse gas emissions, it is imperative that single passenger driving decreases and investments are made in dense development that reduces the need to drive.

A variety of strategies are proposed throughout this chapter to achieve significant greenhouse gas emissions reduction from the transportation sector. Overall, transportation modes such as walking, wheeling, biking, and clean-powered public transit provide the most equitable access for all people and offer innumerable health benefits and cost savings. The choices we make when allocating funds for transportation and implementing infrastructure improvements can have a positive effect, reducing our impact on the climate while improving the lives of all residents.

Equity

Disinvestment in public transit and walkable streets in favor of passenger vehicles has been particularly harmful to low-income and communities of color. Reduced access to jobs, schools, healthcare, and services has further exacerbated structural inequities. Inequitable access to transportation options results from a legacy of discriminatory housing, land-use, and transportation policies. The $750-$1,000 per capita that Wisconsin spends on roads and highways each year has made congestion worse while increasing air pollution, displacing communities of color, and destroying beneficial green spaces. In Wisconsin, low-income and communities of color are both the most dependent on transit services while also being exposed to higher-than-average air pollution from particulate matter, with pollution from transportation and industry as the most harmful source of those disparities.

The Southeastern Wisconsin Regional Planning Commission (SEWRPC) reports 13% of low-income households in Milwaukee use public transportation to get to work versus 5% of higher earners. 13% of Black residents rely on public transportation to get to work, versus 3% of White individuals. SEWRPC predicts that failure to reverse these trends and invest in public transit will find minority populations experiencing a 43% decline[34] in access to 10,000 or more jobs by the year 2050. Walkable neighborhoods combined with safe bike trails and reliable transit services are universally seen as part of the solution. These options also provide all residents with greater choice about how to travel and how to spend one's money. Transit and active modes of transportation should be available to everyone, but according to a report by Transportation for America, six out of ten people drive because of a lack of other options.[35]

Resilience

Reducing the city's reliance on passenger vehicles has many benefits, including a more resilient resident population and workforce. More dense, multi-use neighborhoods that are walkable or bikeable are less vulnerable to being cut off from essential services during extreme weather events. Neighborhoods that are served via robust public transportation networks enable residents to choose an option other than cars to routinely and reliably commute to work. Reducing vehicle miles traveled also lowers the amount of toxic pollutants entering the city's air, which can have enormous public health and environmental benefits.

City Strategy

The City's 2030 goal is to reduce daily average VMT by 20%, from 24.4 miles per capita to 19.5 miles per capita. The reduction would account for 7% of the City's greenhouse gas emissions reductions at a .7 mile per capita decrease each year from 2023 through 2030. Achieving this goal will require changes to both land use and transportation policy, topics that are commonly viewed separately, but are, in fact, intimately linked.

By scrutinizing the policies and regulations that restrict or enable sustainable, equitable transportation opportunities, land use decisions can better reflect the needs of the city, its residents, and the natural environment. The three-pronged approach outlined in this section recognizes that different modes of transportation require various land use intensity, space, and resources. For example, parking lots and structures, even when underutilized, can encompass large areas of land in close proximity to clusters of jobs, goods, and services, eliminating that land for housing and forcing people to live further away from the places they frequently visit. The result is a greater need for driving or public transportation for daily household trips.

Land use development patterns influence, and can be influenced by, transportation modes and infrastructure in both positive and negative ways. The development of Milwaukee's freeway system in the 1950s and 1960s demolished urban neighborhoods and split communities, with the greatest impacts on poorer areas and communities of color. The addition of a high-frequency transit corridor can also foster multi-family housing development and economic development along a commercial corridor. Transportation systems provide a link between the activities of life: home, work, school, healthcare, other goods and services, and entertainment. The relationship between land use and transportation are inextricably linked alongside more traditional strategies to reduce VMT, including public transit, walking, and biking.

Milwaukee County Connect Battery-Powered Buses.

COMMUNITY VOICES

"Adding smart neighborhood design throughout the entire city and not just downtown/east side/Bayview so that all of our citizens have more walkable neighborhoods."

"Physically protected bike/scooter lanes on all the major streets in Milwaukee. This will make walking and biking safer and reduce greenhouse gas emissions from vehicles - fewer VMT, slower speeds, and less car lanes."

"Making the whole city more bike friendly with protected bike lanes, bike boulevards, and lots of bike parking would help decrease fossil fuel use, improve air quality, and improve our health."

"Neighborhoods like the Third Ward are vibrant and active because they are walkable. We need more neighborhoods like that throughout the city."

"Expand the support and extend The Hop streetcar's route. The Hop is an award-winning, modern, electric-powered, hybrid (overhead or battery power options), emissions-free, ADA-compliant, American-made vehicle and its support team and operators have proven their ability to operate safely and well. The Hop shows a path for developing our community to its potential for transit, walkability, environmental benefits, health, equity, livability, economic development, and prosperity for all people."

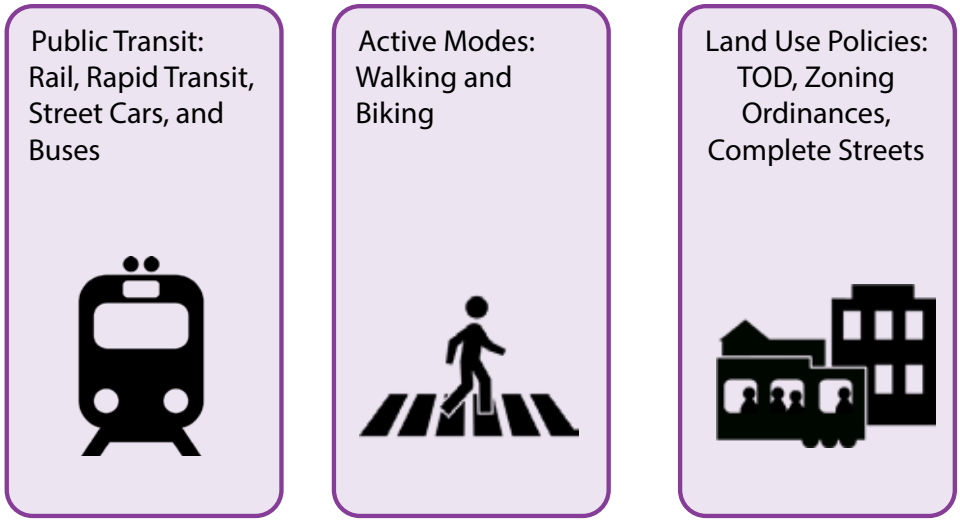
LEADING BY EXAMPLE

In 2018, the City of Milwaukee adopted its Complete Streets Policy after over a year of work and close collaboration between the Department of Public Works, the Common Council, other City departments, and many community partners. The policy requires that all City streets be designed, operated, and maintained according to Complete Streets principles, meaning that streets should be safe, comfortable, and accessible to users of all ages and abilities, no matter how they are traveling. The policy recognizes that safety—particularly pedestrian safety—is imperative, and that street design elements that support walking, biking, and transit trips should be prioritized. The policy also prioritizes equitable investment in underserved communities that lack existing walking, biking, and transit infrastructure and have health and crash risk disparities. In 2017, the City adopted a bicycle parking ordinance that required short-term and long-term bicycle parking be provided at all new developments.

In 2002, the City of Milwaukee overhauled its zoning code to better facilitate mixed-use and transit-oriented development, as well as walkable commercial corridors. Milwaukee's zoning code has no parking requirements downtown or for 1- to 4-unit residential developments. The code includes reduced parking requirements for developments near transit and for shared parking, as well as parking maximums for retail and commercial uses.

Lastly, Milwaukee's Comprehensive Plan and the fourteen Area Plans contain a variety of strategic recommendations that align land use and transportation planning to reduce vehicle trips and provide improved options for transit, walking, and bicycling. In 2018, the City adopted an *Equitable Growth through Transit Oriented Development Plan* to support new housing and commercial options near transit. The Department of City Development's guidelines for utilizing Tax Incremental Financing to support affordable housing developments prioritize mixed-income developments near transit.

Lastly, *Milwaukee's Comprehensive Plan* and the fourteen area plans contain a variety of strategic recommendations that align land use and transportation planning to reduce vehicle trips and provide improved options for transit, walking, and bicycling. In 2018, the City adopted an Equitable Growth through Transit Oriented Development Plan to support new housing and commercial options near transit. The Department of City Development's guidelines for utilizing Tax Incremental Financing to support affordable housing developments prioritize mixed-income developments near transit.



Vehicle Miles Traveled (VMT) reduction strategies

Comparing Milwaukee's VMT Goals to Peer Cities

A wedge analysis performed by ICLEI included the following assumptions for reducing VMT:

- Per-capita vehicle miles traveled will decrease by 20% in 2030
- Per-capita vehicle miles travel will decrease by 30% in 2050

The following are VMT reduction goals and related goals from climate planning efforts in peer cities as detailed in the 2022 *Are Vehicle Travel Reduction Targets Justified? Report* by the Victoria Transport Policy Institute:[36]

Cincinnati, OH:

- Increase passenger miles traveled via public transit by 25% by 2035
- Double bike infrastructure lane miles

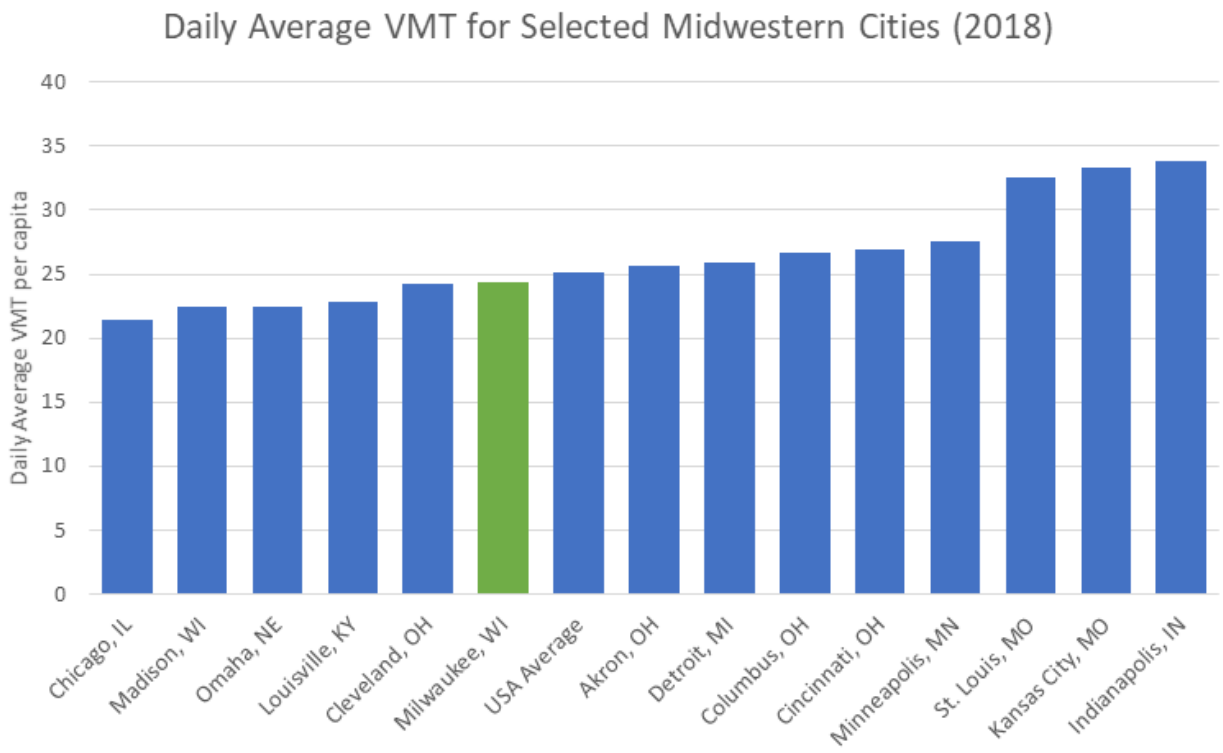
Columbus, OH:

- 15% VMT reduction by 2030
- 40% VMT reduction by 2050

Indianapolis, IN:

- Increase transit service by 70% by 2025
- Increase transit ridership by 15% by 2025
- Decrease commuters driving alone from 85% to 75% by 2025
- Add additional transit-orientated development, densification, and bike/pedestrian infrastructure improvements to reduce VMT

Based on these comparisons, ICLEI's suggested VMT reduction goals for Milwaukee are similar to those in peer cities. It is also important to examine existing vehicle miles traveledconditions to understand the baseline to which these reduction goals are being applied. The following graph shows the daily average VMT per capita for several peer and other regional cities based on 2018 Highway Statistics[37] from the Federal Highway Administration.



Milwaukee's daily average per capita VMT is 24.4 miles, just below the national average (25.2 miles), and on the lower end of the range among its peer cities (21.4 to 33.8 miles).

1. Improve and Expand Public Transit

Enhanced transit services are essential to directly replace miles traveled by car. Transit also benefits non-drivers through a multiplier effect whereby robust transit systems encourage compact development, making businesses and services more readily available within walking and biking distance; this helps explain why residents of transit-rich communities drive 10-30% fewer miles than those of car-oriented areas.[38]

A. Build a Network of Seven Rapid Transit Corridors

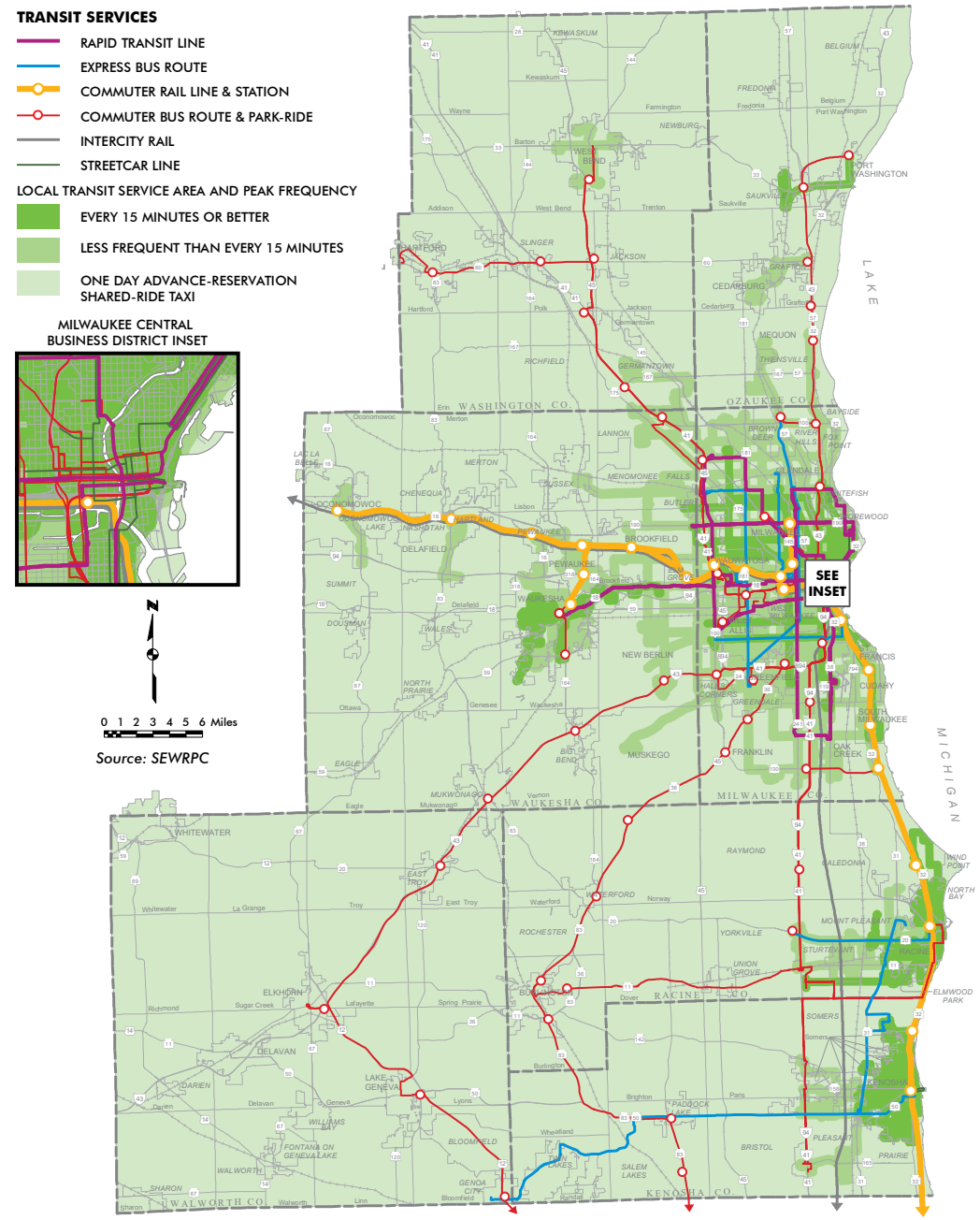
Milwaukee County Transit System, working with City planners, should develop plans to construct the rapid corridors recommended in SEWRPC's *VISION 2050 Plan*, beginning with Bus Rapid Transit (BRT). BRT has a lower development cost than other fixed rail transit options and can be developed much more quickly. Working aggressively to build out the BRT network should be a priority as a near-term option to meet Milwaukee's immediate goal of reducing VMT 20% by 2030. The table below shows the positive effects of the proposed eight BRT lines.

MEASURABLE IMPACTS TO IMPROVE ACCESS TO JOBS AND SERVICES WITH 8 BRT LINES ADDED		
Milwaukee County residents living within walking distance of rapid transit	2022 prior to completion of 1st route in 2023	2030
All residents	0%	43%
Residents of color	0%	49%
Low-Income Households	0%	55%
Jobs accessible by rapid transit	0%	62%
Region's population with access to 10,000 or more jobs within a 30 minute transit trip	Now	2030
All residents	30%	70%
Residents of color	55%	90%
Low-Income Households	50%	85%

The corridors recommended for BRT may be developed as, or replaced by, rail rapid transit if funds become available. Long-term, fixed rail like the streetcar and light rail are important parts of the enhanced transit network called for in this plan as it has the largest transit multiplier effect and may be inherently more attractive as an alternative to driving.

Offering travel times that are competitive with cars and providing enhanced amenities, BRT has been described as "light rail without the rails." Because it can avoid traffic delays experienced by other bus-oriented travel, BRT is able to attract commuters who might otherwise drive. It offers flexibility and can be phased in gradually. Buses will arrive at least every 15 minutes during the daytime, and as frequently as every eight minutes in some corridors. Battery Electric Buses, operating with traffic signal priority, dedicated lanes (at least 75% along the corridors), and stations spaced approximately one-half mile apart will provide a train-like experience with faster service from point-to-point and reduced traffic congestion. BRT passenger services will include level-boarding platforms, off-board fare collection, real-time information screens, and improved pedestrian safety at intersections.

VISION 2050 Public Transit System



B. Expand Milwaukee's Streetcar Service, The Hop

The City will extend the streetcar network to adjacent neighborhoods and areas with the potential for becoming densely developed transit hubs. Recommended extensions are to UW-Milwaukee, and from Bronzeville to Walker's Point.

C. Expand the Frequency and Hours of Existing Bus Services

It is further recommended improvements be made to the frequency and hours of transit service in Milwaukee County by approximately 15%, prioritizing corridors that were unable to be enhanced under previous budget limitations. BRT and rail systems work best when they are fed by robust bus systems. To get drivers out of their cars and onto buses, bus service not only needs to be faster, but also more frequent and more affordable than driving. Research indicates that if either efficient travel times, direct routes or few transfers, and high service frequency are missing, transit use declines.

Proposed Improvements:

- Add four additional High Frequency Routes (service every 15 minutes or better during the daytime)
- Enhance several existing High Frequency routes to arrive every 10 minutes during the daytime
- Extend service hours on some High Frequency corridors to provide 24 hour-a-day service on most days
- Extend the service hours of Daytime Routes to include evening service
- Partner with van service providers to provide access to jobs in business parks not easily or efficiently served by fixed-route bus

D. Improve Bus Travel Time and Other Amenities

Finally, Milwaukee County Transit System (MCTS) should work with City planners as necessary to develop physical infrastructure to speed up bus service and improve passenger amenities. Infrastructure to speed up service on high frequency routes can include adding bus lanes in congested areas or adding transit signal priority. In addition, MCTS can increase the number of bus shelters across the City and County, install enhanced shelters at high ridership stops, and perform necessary accessibility improvements to meet ADA standards at all stops.

BUS SERVICE IMPROVEMENTS' MEASURABLE IMPACTS		
Milwaukee County residents living within walking distance of high frequency transit	Now	2030
All residents	56%	61%
Residents of color	64%	70%
Low-Income Households	67%	74%
Jobs accessible by rapid transit	60%	64%
Region's population with access to 10,000 or more jobs within a 30 minute transit trip (if combined with recommended BRT)		
All residents	30%	70%
Residents of color	55%	90%
Low-Income Households	50%	85%
Number of local jobs created (drivers, mechanics and support staff)	45	

The Hop. Photo Credit: John December.

Women with Bublr bikes. Photo Credit: VISIT Milwaukee.

E. Explore Local Funding Opportunities for Transit

Given inadequate funding for public transit at the state level, the City and County will explore ways to increase local commitments for public transportation. According to the American Council for an Energy Efficient Economy's 2021 City Clean Energy Scorecard, many municipalities around the nation have responded to state funding deficits by coming up with "inventive funding mechanisms to foster transit development with local monies, indicating their interest in promoting public transit as a reliable means of transportation. Local funding for transportation is generated in a variety of ways and can make up a significant portion of expenditures on transit expansion.[39] "While the state has placed legal constraints on the ability of the City and County to generate local support for transportation, there are other mechanisms that might be utilized, such as the creation of a transportation utility district.

2. Prioritize Active Modes of Walking and Biking

Multiple studies have illustrated that walking and biking can make a measurable difference in reducing VMT. Results from a 2017 National Household Travel Survey demonstrate that it is possible to shift many short trips taken by car to walking or biking. According to the survey, 53% of all trips are within 3 miles or less, and 28% of all trips are within 1 mile or less. 3 miles is equivalent to a 20-minute bike ride for the average adult, and 1 mile is equivalent to a 20-minute walk for the average adult. Access to safe, active modes of transportation is particularly important to low-income and minority households; these populations take 50% more walk trips than higher income individuals and have the greatest rate of bike trips, often using bikes to access employment. In addition to being more environmentally-friendly, infrastructure for active modes of transportation is less costly to build and maintain, supports local business development, and creates more green jobs.[40]

Specific, short-term recommendations include:

- Install protected bike lanes through downtown to connect the Oak Leaf Trail, Hank Aaron State Trail, and Beerline Trail.
- Implement design changes for reckless driving on some of Milwaukee's most dangerous streets, such as 27th Street, Fond Du Lac Avenue, Capitol Drive, and 35th Street. See an example of safer street design below.
- Continue to support development of a bike and pedestrian trail next to the railroad running along Milwaukee's 30th Street Corridor. An Equitable Development Planning Process Project Team has been meeting since spring of 2022 and are engaging community members in the trail planning process. The Equitable Development Planning Process Project Team includes the Rails to Trails Conservancy, 30th Street Industrial Corridor Corporation, Near West Side Partners, Northwest Side Community Development Corporation, Havenwoods Neighborhood Partnership, and Chris Boston as Team Facilitator. In addition, engineering studies have begun to seek additional funding for the project.

Example of possible design changes to prioritize safer walking. Image by the Federal Highway Administration.

Implementation of these recommendations could be significant and provide another option for commuting to work or school, particularly for lower income households. The existing, separated Oak Leaf Trail network primarily serves recreational riders; however, with a mere 6 miles of protected bike lanes downtown, the entire Oak Leaf Trail, Hank Aaron Trail and 30th Street Corridor Trail could become effective for commuting into downtown.

3. Establish Land Use Policies that Reduce VMT

A. Prioritize Transit-Oriented Development within the Zoning Code

The Department of City Development (DCD) will continue to advance the recommendations from the *Equitable Growth through Transit Oriented Development Plan* to make updates to the zoning code that further support new housing and commercial developments near transit. The recommended updates provide new options for residents to live in neighborhoods that are well served by transit and support thriving commercial districts along transit corridors.

B. Update the Zoning Code to Expand Housing Choice

In 2023, DCD will carry out an update of the housing elements of the City of Milwaukee's zoning code with a focus on facilitating development that advances the City's housing affordability, racial equity, and climate action goals. The City of Milwaukee's zoning code was last updated in 2002. While the existing code supports mixed-use development, high density near transit, and other strong smart growth principles, there are areas of the code that need to be updated to align with evolving national best practices, recommendations included within the City's more recent planning efforts, and to accommodate future population growth.

With the completion of the *City's Affordable Housing Plan* and the *Climate and Equity Plan*, DCD Planning will utilize recommendations to carry out a community-driven update to the portion of the City's zoning code regulating housing development. This project will propose code adjustments to advance the recommendations of multiple city planning efforts to:

- Support citywide, transit-oriented development and walkable neighborhoods.
- Increase housing choice, diverse housing styles, including accessory dwelling units, and affordability across all city neighborhoods.
- Propose updated parking requirements that align with housing affordability and climate action goals.

C. Advocate for Local Authority to Enact Inclusionary Zoning Ordinances

State law currently prohibits municipalities from requiring that a portion of units in new residential developments be affordable, including in situations where a developer may agree to provide affordable housing in exchange for additional development entitlements, called density bonuses. The City will work with other local governments and housing stakeholders to advocate for state policymakers to support affordable housing, including providing local control to allow municipalities to enact inclusionary zoning ordinances.

D. Revisit Parking in the Zoning Code

DCD should evaluate lowering or removing existing parking requirements and including parking maximums over time as investment in multimodal transportation and utilization of alternatives increases. Developers and businesses will better be able to determine the number of parking spaces that are appropriate for customers and residents, and support reliance on multimodal transportation choices beyond personal vehicles.

E. Establish Variable-Priced Metered Parking in Milwaukee's Downtown and Commercial Districts

Department of Public Works (DPW) Parking Services/ Transportation should set parking rates based on occupancy rates to balance the demand and supply of on-street parking spaces. The variable pricing system would optimize access by establishing pricing to encourage the availability of one or two open spaces per block, effectively reducing or eliminating parking shortages. Demand-based parking pricing will provide the additional benefit of reducing vehicle miles traveled and associated emissions as less traffic will be attributed to the search for parking in downtown and other commercial districts.

F. Reallocate City Parking Revenue

Beginning in 2023, DPW Parking Services/ Transportation, the Budget Office, and partners should dedicate the majority of parking-related revenue from parking meters, the off-street program, towing, vehicle disposal, etc. to support on-street, other public realm improvements, and additional services that support equity goals. Parking revenues can enhance mobility in low-income communities. Examples of public parking revenue use for public services from peer cities include:

- Support for transit passes and expanded services
- Pedestrian and bicycle safety improvements
- Streetscape improvements, including curb bump-outs and parklets
- Projects that support equity objectives and improve mobility options for non-drivers

G. Parking Reform: Re-envision Underutilized Parking Lots

City agencies including DPW, ECO, and DCD continually consider City- and RACM-owned parking lots to integrate green infrastructure to reduce stormwater and improve water quality, integrate additional community amenities to improve the utilization of these parking assets, and reduce parking and pavement when appropriate. Additional information on depaving is included in Big Idea 8: Nature in the City.

H. Expand Implementation of the City's Complete Streets Policy

The City of Milwauke Complete Streets Policy directs staff to plan, design, and maintain streets that are safe and accessible for everyone, no matter their age, ability, or how they are traveling. The policy also directs staff to prioritize underserved communities and increase community engagement. These principles are essential to both enabling people to drive less and creating a more equitable community

Process improvements have been made under the policy, and the City will accelerate these changes moving forward. In order to achieve climate and equity goals, the City will explore and embrace more dramatic changes to how our streets are designed to make walking, biking, and transit safer, easier, and more comfortable; this can include piloting streets designed solely for transit, pedestrians, and bicyclists.

I. Create an Unbundled Parking Ordinance

The City will consider requiring that parking spaces be leased separately from the base cost of a rental property, rather than being bundled with rent. Unbundled parking enables residents to purchase parking only if they need it and reduces rates of car ownership and driving.

J. Create a Parking Cash Out Ordinance

The City will explore establishing a parking cash out ordinance that would require employers to offer employees the option to receive a cash payment or other compensation instead of a free or subsidized parking space at work the employer would otherwise provide. Parking cash out programs incentivize people to walk, bike, take transit, and carpool in place of driving alone.

K. Create a Transportation and Mobility Plan & Sustainable Freight Plan

The City will continue its development of a *Transportation and Mobility Plan* with broad community engagement to develop a detailed vision of the future of Milwaukee streets and specific strategies for achieving that vision. The *Transportation and Mobility Plan* involves not only updates to the existing *Milwaukee by Bike Plan* and *Milwaukee Pedestrian Plan*, but also a comprehensive analysis of all travel modes in the city. Either as part of this broader plan or as a stand-alone plan, the City will explore creating a *Sustainable Freight Plan*. This plan should also include analysis of multimodal options for handling freight and deliveries, electrification in the fulfillment industry, and consideration of how online retail has increased the frequency of delivery vehicles on the road.

6. ELECTRIFY TRANSPORTATION

Begin a transition to electrified vehicles to build a foundation that lowers greenhouse gas emissions while broad access to affordable transportation.

Importance

Reducing greenhouse gas emissions from the transportation sector is critically important to combating climate change. In the City of Milwaukee specifically, the 2018 Community Greenhouse Gas Emissions Inventory shows transportation made up 21% of emissions.[41] Countywide, transportation made up 33% of emissions, the second largest category of emissions.[42] Transportation makes up 30% of greenhouse gas emissions[43] in Wisconsin and now accounts for the most emissions in the U.S. at 29%.[44]

Increasing use of transit, bikes, and pedestrian options is a critical part of reducing vehicle miles traveled and greenhouse gas emissions. In addition, shifting our fuel sources from gasoline and diesel to electricity and alternative fuel sources, like renewable natural gas for heavy duty vehicles, is also critical to reduce greenhouse gas emissions from the transportation sector.

A region-wide transition to electric vehicles (EVs) will help reduce local air pollution, which disproportionately impacts communities of color and underserved communities. Replacing gasoline-powered cars with EVs saves energy and reduces greenhouse gas emissions, regardless of the energy-source used to charge the EVs. Gasoline-powered vehicles also produce emissions when idling, whereas EVs can be on and stationary without producing emissions. As our electric grid is increasingly run from renewable energy resources, the electrification of transportation will become even cleaner. On a global scale, the electrification of transportation is well underway. The City of Milwaukee needs to be ready for this transition to ensure it is equitable.

Electric Vehicle Trends

Globally, EV adoption is rising significantly. Bloomberg New Energy Finance (NEF) reported that in 2022 there were more than 20 million passenger EVs, 1.3 million commercial EVs like buses, delivery vans, and trucks, and over 280 million two- and three wheelers on the road throughout the world.[45] Bloomberg NEF's 2022 Electric Vehicle Outlook forecasts that globally 44% of new passenger/light duty vehicle sales will be electric by 2030 without significant policy intervention.[46] In the U.S., EVs account for 5% of all new car sales and could account for 25% of all U.S. new car sales by 2025, according to an analysis by Bloomberg News.[47] In the 2022 *Wisconsin Electric Vehicle Infrastructure Plan*, the Wisconsin Department of Transportation (WisDOT) forecasts there will be 334,000 EVs on Wisconsin roads by 2030.[48]

Despite this projected growth, the City will not achieve its goals for EV adoption by 2030 without significant policy and program intervention. Although sales are accelerating in Wisconsin, with 9,039 EVs out of 619,436 total vehicles registered in 2021, EVs account for less than 1% of total cars and other light-duty vehicles. EVs are also less than 1% of all registered vehicles in the City of Milwaukee and Milwaukee County. In 2021, WisDOT reported just 1,320 electric light-duty vehicles like cars, SUVs, and pick-up trucks registered in Milwaukee County, with 484 of those registered in the City of Milwaukee.

Like many new technologies over time, low levels of EV adoption are attributable to a variety of

Car manufacturing.

barriers including real and perceived technical, social, economic, political, and built constraints. Leading barriers to EV adoption include price, range, charging availability/infrastructure, and consumer awareness/perceptions. Several car companies have announced plans to phase-out the manufacture of gasoline-fueled vehicles and introduce more EV models with more options in price point, style, and range, among other features. Milwaukee must be ready to support a just transition of our transportation systems, particularly for underserved community members.

Person driving.

COMMUNITY VOICES

"I have asthma...air quality is important to me. I have a brand new grandchild, so it's super important."

"We need to learn how to move and restructure and re-engineer...without expelling so much carbon into the atmosphere. Buses should all be electrified. We should do whatever we can to get electric cars to replace the internal combustion vehicles that we have."

"As to electric vehicles, charging is more easily financed by homeowners, but what about apartment dwellers or the myriad residents who park on the streets—if they can even afford new vehicles?"

LEADING BY EXAMPLE

The City of Milwaukee has begun the process of transitioning its municipal fleet from traditional internal combustion engine vehicles to those powered by alternative fuels, EVs, or hybrids. The Milwaukee Police Department (MPD), with the help of ECO, purchased 10 hybrid Police Interceptors to pilot in 2020. The vehicles have increased miles per gallon over 50% and reduce emissions per mile 35%. MPD has ordered 30 more hybrids to use as primary vehicles moving forward.

ECO has also completed an analysis of vehicle use per department. Next steps are to select vehicles that match user needs and plan for charging infrastructure. DPW-Parking is leading the way with the adoption of EVs for parking enforcement vehicles. DPW-Parking has purchased 4 EVs to pilot and was recently awarded a $1.7 million federal grant from the Congestion Mitigation and Air Quality Improvement Program to expand EVs in the fleet and build-out charging infrastructure. Moreover, DPW-Parking is looking for ways to make its EV chargers accessible to City employees and members of the public through a smart phone application. In 2022, the City began to develop, communicate, and implement a clear policy specifying considerations for vehicle and fleet purchase, lease, and other acquisition. Adopted in 2023, the policy puts the City on a path to convert its municipal fleet to fully electric, hybrid, and other low-emissions vehicles.

In addition, the Milwaukee County Transit System, a transit system that operates throughout the City of Milwaukee, will also add ten battery electric buses (BEVs) to its fleet. BEVs will be used on the upcoming East-West Bus Rapid Transit Route, which runs along Wisconsin Ave. and will connect downtown Milwaukee to the Milwaukee Regional Medical Center in Wauwatosa.

Equity

Racial and socioeconomic disparities are clear in EV adoption trends nationwide. Most new and used EVs have been purchased by affluent households. In addition to income disparity, research shows a racial disparity in EV adoption, with Black and Latino drivers making up 41% of purchases of gasoline-powered vehicles and just 12% of EV purchases.[49] Part of the disparity could be attributed to limited access to reliable charging infrastructure, a barrier to EV adoption by those who are not homeowners. Renters in multi-family units often do not have access to a charging station on-site and cannot reliably or conveniently charge overnight. Convenient access to EV charging is one of the benefits of driving electric, but also one that is not equitably realized. Home charging is critical to accelerating adoption, as more than 80% of EV charging is done at home. Increasing access to at-home charging is necessary, particularly in multi-family dwellings where underserved community members often live.

The price of EVs is another factor that contributes to the disparities in adoption rates. Estimates have been made that the price parity between internal combustion engine vehicles and EVs may occur in or around 2025.[50] The Inflation Reduction Act will help make EVs more affordable for middle- to lower-middle class consumers by providing incentives of $7,500 for new and $4,000 for used vehicles. As upfront costs fall and inventory of used EVs grows, more equitable access can be expected. Increasing EV adoption rates in Milwaukee will present challenges, but also significant opportunities for green job growth.

Resilience

According to Clean Jobs Midwest, the Milwaukee Metropolitan area has a total of 18,574 clean energy jobs and Wisconsin as a whole has 69,343.[51] Advanced transportation jobs within this workforce account for 7% of the total, suggesting that the state has a solid track record of clean energy employment with room for transportation-specific clean energy jobs to grow. A prime example is the opportunity for more skilled electricians to help install and build out Milwaukee's EV charging network. Electricians represent a specific pathway to a well-paying, skilled job without a college degree requirement. Other job opportunities include program and project managers with utilities and private installation companies, sales representatives, and technicians that provide training and maintenance.

City Strategy

According to ICLEI's wedge analysis, Milwaukee can achieve 45% greenhouse gas emissions or reductions by 2030 with 5% of emissions reductions from electrification of transportation. To achieve the goal, 50% of new vehicles registered in Milwaukee will need to be EVs by 2030 and 30% of new, heavy-duty vehicles will need to be EVs. The City of Milwaukee is developing a multi-pronged strategy to achieve this level of EV adoption.

DPW Hybrid Vehicle.

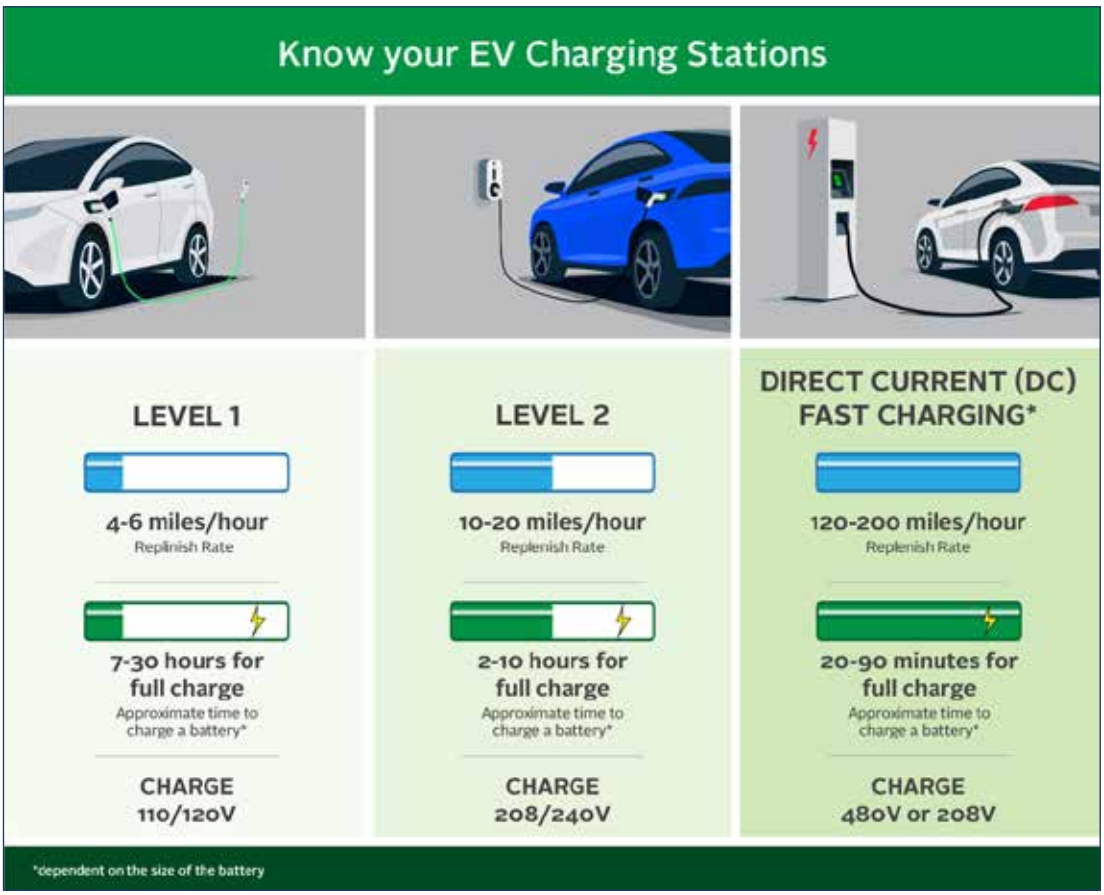
Continued Transition of Municipal Fleets

As referenced above, in 2022 ECO began working with municipal fleet managers to develop an ordinance committing the City to transition fleets to EVs, hybrids, and other low-emissions vehicles. In addition, ECO will work with fleet managers to identify and apply for federal funding available to support vehicle purchases and charging infrastructure. ECO is also exploring opportunities to replace the compressed natural gas that currently powers many heavy-duty City vehicles with renewable natural gas (RNG), a fuel source that can be considered to provide negative greenhouse gas emissions, as RNG captures the methane (a potent greenhouse gas) that would otherwise be released into the atmosphere from landfills or livestock operations, and uses it as a fuel source. The Milwaukee County Transit System should also continue expanding its fleet of electric buses.

Build Out the EV Charging Network

A readily available public charging network is an important factor in increasing EV adoption rates. According to the U.S. Department of Energy's Alternative Fuels Data Center, Wisconsin currently has 368 Public Level 2 and fast charging stations with a total of 832 charging ports. 28 of the public charging stations are in Milwaukee County, and of those, 21 are in the City of Milwaukee.[52] An analysis using Alternative Fuels Data Center Tools performed by Slipstream found that the City would need 818 Workplace Level-2 Chargers, 500 Level-2 Public Chargers, and 87 Public Level-3 Fast Charging Plugs installed to support 50% of light-duty vehicle sales being EVs by 2030. Charging calculations could change if there is wider adoption of home EV chargers.

ECO will work with experts, partners, members of underserved communities, and other stakeholders to develop a *Public EV Charging Network Plan* based



Graphic explaining the difference between Level 1, 2, and 3 Chargers.
Graphic by the General Services Administration.

on equity, access, and efficiency. In addition, the City will seek funding to install EV charging equipment at City-owned parking lots. Several libraries were made EV charger-ready during repaving and could serve as pilots in determining the different types of charging equipment or vendors that could be used for citywide use. The City will also collaborate with the Wisconsin Department of Transportation's Wisconsin Electrification Initiative and *EV Infrastructure Deployment Plan* to help locate fast EV charging stations in Milwaukee.

The City is not likely to be able to procure, install, and maintain enough chargers by itself to meaningfully impact adoption, so partnerships with other entities are important to consider. Collaborations with key stakeholders including We Energies, large employers, multi-family housing owners, existing gas stations, and others will allow the City to explore ways to expand charger availability on private property. ECO will also work with stakeholders to propose an ordinance that requires a certain percentage of parking spots provide EV charging or be ready for EV charging installation by running electrical conduit under parking surfaces. Many other cities have had success with such ordinances, including Madison, Wisconsin, which passed its ordinance in early 2021.

Finally, the recently enacted federal Infrastructure Investment and Jobs Act includes new funds to support public EV charging stations. ECO will work with partners, including potentially other Wisconsin cities, to pursue these federal resources to grow Milwaukee's public EV charging infrastructure. Planning infrastructure in coordination with other cities will support consistency in the EV charging network as drivers travel the state.

People talking while electric vehicle is charging.
Photo Credit: VISIT Mlwaukee.

Raise Public Awareness of EVs

In addition to growing its EV charging network, the City will work to increase public awareness through existing programs and new partnerships. ECO will add an EV awareness component to the ECO Neighborhoods Initiative to inform community members about EV charger installation programs, incentives for the purchase of new and used EVs, and opportunities to test drive EVs. ECO will also partner with the Wisconsin Clean Cities Coalition to organize test drives and other community outreach events, and with Renew Wisconsin on its EVs for Good Initiative for community awareness. Finally, ECO will work with Drive Electric Wisconsin to increase consumer demand and dealerships' supply and sale of EVs.

7. GREENING THE ELECTRIC GRID

Support rooftop solar and utility-scale investments in renewable energy for a just energy system.

Milwaukee's largest solar array near General Mitchell Airport.

Importance

Electricity powers our homes, businesses, streetlights, appliances, computers, and even our cars. A reliable electricity supply is critical to our modern society. Historically, the major fuel sources used to generate electricity were coal and natural gas. These fuels, when combusted to produce electricity, also produce greenhouse gasses that are major contributors to climate change. Greening the Electric Grid aims to accelerate the switch to clean, renewable sources of energy such as solar and wind that reduce, and eventually eliminate, emissions from the electric power sector. Greening the grid accounts for 57% of the change needed to meet Milwaukee's 2030 emissions reduction goal. The shift to a clean, renewable electric grid also underpins other strategies like vehicle electrification. To achieve net-zero carbon emissions by 2050, natural gas would need to largely be eliminated for heating our built environment and be replaced by carbon-free alternatives like electric air-source heat pumps powered by renewable energy.

Utility Involvement: We Energies

We Energies is a subsidiary of the WEC Energy Group and is an investor-owned utility with a service territory that covers southeastern Wisconsin, including the City of Milwaukee and Milwaukee County. We Energies is Milwaukee's sole public electric utility provider. WEC Energy Group's Corporate Responsibility Report outlines the company's overall climate strategy and progress within its portfolio. *We Energies' Pathway to a Cleaner Energy Future* document states the utility's commitment of a 60% reduction in carbon emissions by 2025 and an 80% reduction by the end of 2030.[53]

Solar panels on top of Milwaukee Central Library.

Despite the aggressive carbon reduction commitments outlined above, We Energies has advocated for policies and legal interpretations that limit the adoption of distributed renewable energy systems that are not directly owned or controlled by them. The traditional model of energy distribution includes several massive power plants that send energy long distances to consumers. Another option are distributed renewable energy systems, smaller structures that produce energy closer to where it will be used to serve either a single building or a microgrid. Distributed renewable energy systems can strengthen the resilience of communities through energy independence. In addition, these systems can often be deployed quicker than large central power plants.

Tools for Greening the Grid

The electric grid is largely under the control and operation of electric utility companies. These companies are involved in the generation, transmission, and distribution of electricity from source to consumer. Wisconsin's investor-owned utilities and energy market are regulated at the state level through a combination of state laws and administrative oversight by the Public Service Commission of Wisconsin (PSC). Local governments do not play a direct role in regulating electric utilities. In addition, local governments and residents have fewer options than communities in other states to purchase renewable energy. In response to these limitations, the City of Milwaukee and Milwaukee County have become active advocates for climate policy at the PSC through the Wisconsin Local Government Climate Coalition (WLGCC) and direct intervention on PSC dockets. WLGCC and its members are authorized to file comments in dockets and cases before the PSC. These actions create a pathway to design and implement the policy and regulatory changes necessary to enable a transition to a clean electric grid.

Over the last decade, Wisconsin, and, as a result, Milwaukee, has fallen behind other states and cities in creating policies that support adoption of renewable energy on the electric grid. The following is a list of renewable energy policy tools that many states and cities are using to achieve renewable energy goals, and their status in Wisconsin:

RENEWABLE ENERGY POLICY TOOLS		
POLICY	**DESCRIPTION**	**STATUS IN WISCONSIN**
Community Choice Aggregation	Community Choice Aggregations are statutorily authorized retail electricity choice programs administered by municipalities, which aggregate the demand of all customers within their jurisdictional boundaries and enroll customers on an opt-out basis. The programs leverage the negotiation of contracts with retail or wholesale energy providers.	Wisconsin law currently does not allow for Community Choice Aggregations. The Wisconsin Local Government Climate Coalition's preferred approach is to increase renewable energy adoption through existing utilities when possible.
Community Solar Programs	Many homes, apartments, and businesses are not conducive to rooftop solar installations due to roof orientation, tree cover, or other factors. Community solar involves the development of an off-site solar installation through which multiple customers can buy or lease solar panels and receive a bill credit for electricity generated by the system.	Although other Wisconsin utilities offer community solar, We Energies currently does not. Current state law does not allow other solar providers to offer off-site solar programs to consumers.
Green Rates	Green rates allow for a customer to voluntarily pay a higher rate to the utility for all or a portion of their electricity to come from renewable energy sources.	We Energies offers its customers the Energy for Tomorrow Program. The City of Milwaukee previously used this program for 10% of the electric power at City Hall. These programs do not necessarily lead to new utility investments in solar systems and the end user does not formally get the Renewable Energy Credits.

RENEWABLE ENERGY POLICY TOOLS

POLICY	DESCRIPTION	STATUS IN WISCONSIN
Net Metering Rates	Net metering policies allow distributed generation customers to sell excess electricity to their utility at a specified rate and receive credit on their utility bill, which offsets the customer's electricity consumption during other times of the day or year, reducing the expenditures the customer must send to a utility.	Net metering rates over the last decade have been lower in Milwaukee than other cities. Additionally, an annual net metering reconciliation policy would benefit customers more than the monthly net metering currently offered by We Energies.
Renewable Energy Sleeve Tarriffs	Renewable Energy Tariffs allow institutional customers to work with their utility to plan and build large renewable energy projects. Customers continue paying their regular electric rates to the utility but are able to invest in and receive the benefits of solar production, including Renewable Energy Credits toward their climate goals. These programs are on-bill.	We Energies currently offers the Dedicated Renewable Energy Resource Pilot Program that is a possible pathway for the City to achieve its 25% by 2025 renewable energy goal. This program currently has 20+ year commitment terms and does not explicitly require local labor to build the projects. We Energies also offers the Solar Now Program through which the utility leases land or rooftops from customers to install solar energy. The City of Milwaukee and Milwaukee County have both implemented large projects using Solar Now but have not yet utilized the Dedicated Renewable Energy Resource Pilot Program.
Renewable Portfolio Standards	Renewable Portfolio Standards are state laws that require utilities to increasingly use a minimum percentage of renewable energy over time as a portion of their energy portfolio.	In Wisconsin, the statewide Renewable Portfolio Standards is 10%; this law has not been updated since 2005, but utilities have made public pledges to far exceeded these legislative requirements.

RENEWABLE ENERGY POLICY TOOLS

POLICY	DESCRIPTION	STATUS IN WISCONSIN
Third-Party Financing for Rooftop or Ground-mounted Solar Energy Systems	Third-party financing allows solar providers to finance and install solar on a customer's property. This financing mechanism helps make the upfront investments in solar more affordable, especially for schools, governments, and non-profit institutions that cannot otherwise take advantage of federal tax credits for solar energy productions.	We Energies has denied interconnection of third-party financed solar projects under the legal interpretation that solar companies offering this financing are acting as public utilities.
Virtual Power Purchase Agreements	Virtual Power Purchase Agreements are financial agreements in which customers invest in large-scale solar projects and receive some financial benefit from the power sold to the grid on the wholesale market as well as Renewable Energy Credits toward their energy goals. In these arrangements, the customer continues to purchase energy directly from their utility.	To date, neither the City of Milwaukee or Milwaukee County have pursued these arrangements. Large-scale solar projects on the wholesale market still require a utility off-taker to purchase the power. Some institutions have used Virtual Power Purchase Agreements to invest in other states, but these do not yield local economic development benefits.

Solar installation. Photo courtesy: Midwest Renewable Energy Association.

Equity

Milwaukee residents are directly affected by the negative impacts of fossil fuel combustion for electricity. Air pollution is one significant and measurable impact. The EPA tracks air pollution in areas that do not meet National Ambient Air Quality Standards, also called nonattainment areas, and areas that contribute to ambient air quality in a nearby area not meeting standards. According to the Wisconsin Department of Natural Resources, the entire City of Milwaukee has elevated levels of pollution. Air pollution can negatively impact public health and the natural environment. In the short term, Milwaukee can switch from coal-fired power plants to natural gas to reduce air pollution that contributes to high rates of asthma and other respiratory illness. By 2035, Milwaukee should retire all coal-fired power plants in the area.

Resilience

According to the U.S. Government Accountability Office (GAO), the effects of climate change could cost billions and "affect every aspect of the grid from generation, transmission, and distribution to demand for electricity." In the Midwest, warmer temperatures and heat waves can reduce the transmission capacity of power lines. Heat waves can also damage distribution lines, a vital lifeline for cooling buildings. As of a 2021 report by the GAO, the U.S. Department of Energy does not have an agency-wide approach to grid climate resiliency that ensures resources are targeted effectively;[54] therefore, the City recommends that We Energies utilize new federal resources to improve grid resiliency in Milwaukee in the face of climate change. Improvements can include strengthening grid infrastructure in the face of extreme weather and investments in energy storage to extend the amount of renewable energy accessible to the grid when the sun isn't shining or the wind isn't blowing. Additionally, homeowners and business campuses should consider the creation of microgrids, small areas of interconnected loads and distributed energy resources that act as independent entities from the electric grid. Microgrids can pair battery storage along with on-site solar distribution to protect properties and the people they serve from broader and more frequent grid outages.

City Strategies

Through its Milwaukee Shines Program, the City of Milwaukee has helped grow the market for rooftop solar, which increases the amount of renewable energy on the grid. Local strategies that should be continued and expanded include:

- Streamlining the permitting process for installing solar energy systems
- Financing solar projects through Milwaukee Shines solar loans for residential projects and PACE financing for larger projects
- Expanding workforce partnerships to develop Milwaukee's solar workforce, particularly for people of color
- Utilizing group-buys in partnership with the Midwest Renewable Energy Association to reduce the cost and complexity of solar installations

Significant new tax credits for solar energy as part of the Inflation Reduction Act are now available to make solar energy investments more cost effective than ever. Local governments are eligible for these tax credits in the form of direct payments that can cover up to 70% of the project cost.

COMMUNITY VOICES

"Reducing our energy use and building with sustainable, long-lasting infrastructure will help improve our air quality, reduce our reliance on fossil fuels, and help us save resources in the long run."

Advocacy

The City of Milwaukee will take positions that accelerate the transition to renewable energy and retirement of coal-fired power plants. Advocacy will include the submission of public comments and/or intervention in relevant dockets before the Public Service Commission, as well as expressing support for statewide legislation that will speed up adoption of utility-scale and distributed renewable energy. The City of Milwaukee may work in conjunction with other communities through the Wisconsin Local Government Climate Coalition to strengthen the collective voice of communities throughout Wisconsin with aligned climate goals. Outlined in the Roadmap to Zero Carbon Investigation (PSC Docket 5-EI-158), the City supports these policies adapted from WLGCC comments (PSC Ref #411458):

- **Utility Scale Transition to Renewable Energy:** The City will advocate for utility planning and decision-making that supports the retirement of all coal-fire generation in the state by 2035 or sooner and other fossil fuel generation in the state by 2045. Natural gas can act as a bridge-fuel, but any new investments in natural gas infrastructure must be carefully considered within Wisconsin's Energy Priorities Statute 1.12. The City will support utility-specific progress toward clean energy goals using 5-year benchmarks and the transition to renewable energy for all customers at fair rates.
- **Universal Access to Renewable Energy:** The City will advocate for adoption of policies to support distributed solar energy, including, but not limited to, fair net metering rates that recognize the full spectrum of benefits distributed energy provides to the grid, fair interconnection policies, and the creation of community solar. In addition, the City will continue to advocate for laws or rulings to clarify solar companies that finance solar energy projects as a third-party are not public utilities under Wisconsin law, expanding access to renewable energy for all customers.
- **Support Transition to the Utility of the Future:** As described in PSC Ref 411458: "For most geographic areas of the State, Wisconsin's historic utility regulatory model has encouraged investor-owned utilities to control and invest in utility infrastructure. The system has been generally successful in delivering a reliable and stable supply of electricity and gas. However, from the perspective of local governments who have explored programs nationally, Wisconsin utilities could be more responsive to the evolving opportunities for residents to take more control over their energy needs and be more collaborative partners with local government who have often tended to be more assertive in supporting a transition to renewable energy and energy efficiency in buildings. The PSC can play a role in establishing better incentives for Wisconsin's electric utilities to support energy efficiency in buildings through on-bill financing or other means, distributed energy generation, new technologies pilots like battery storage and microgrids, and electrification of the heating and transportation sectors. Wisconsin's regulatory environment supports the traditional utility business model that grants a stable rate of return on large investments in generation, transmission, and distribution assets. The City supports consideration of new utility business models that align a utility's economic incentives with important public policy goals such as the fuel mix outlined in Wisconsin's Energy Priorities law. §1.12, including the proper emphasis on energy efficiency and conservation and non-combustible renewable energy. Specifically, the utilities themselves and/or the PSC should also examine utilities' "Return on Equity" formulas and performance bonuses to incentivize energy efficiency, demand side management, and deployment of distributed renewable energy systems."

Underpinning this advocacy strategy is an interest in working professionally with We Energies through a Clean Energy Memorandum of Understanding or other means to facilitate a timely and just transition to a clean electric grid. If cooperation does not yield a timely transition toward renewable energy, the City may advocate for bolder reforms, such as Community Choice Aggregation, to allow for other pathways to achieve the necessary transition to renewable energy at scale.

Port Milwaukee Wind Turbine.

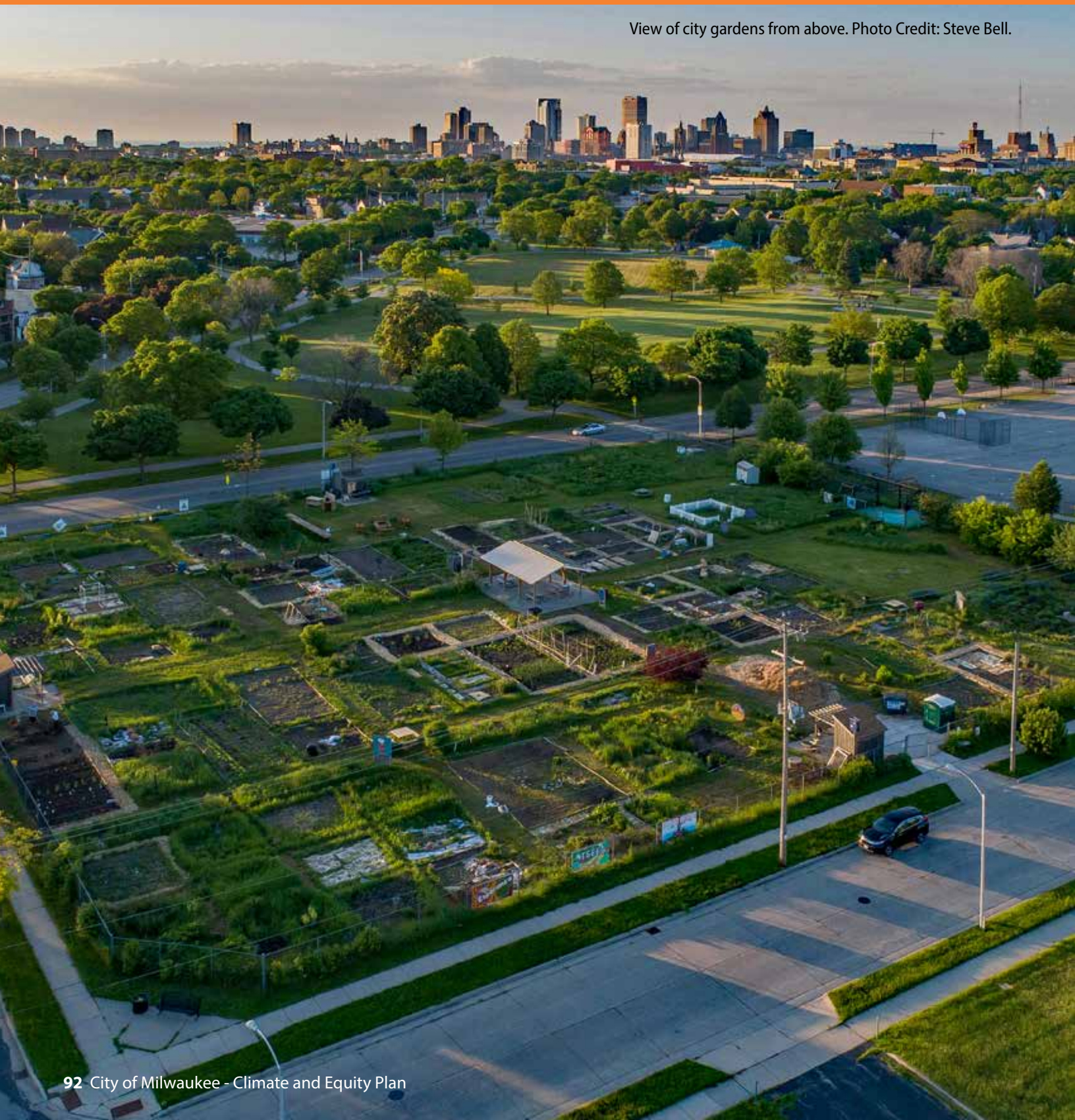
Direct Purchasing

In 2009, Milwaukee joined other communities around Wisconsin to establish a 25% by 2025 renewable energy goal for municipal operations. Other corporations in Wisconsin may have similar Environment, Social Responsibility, and Governance (ESG) goals that include greenhouse gas reduction goals. Since less than 8% of We Energies' current fuel mix is composed of renewable energy, the City and other corporations need better options to accelerate their use of renewable energy. Rooftop solar is part of the solution, and the City should invest in additional rooftop solar arrays when cost effective; however, the City of Milwaukee maintains a large system of streetlights, water treatment and pumping infrastructure, and buildings whose energy needs cannot be met only by rooftop solar. The City will also support options to opt-in to new, off-site utility-scale renewable energy projects.

The City has utilized We Energies' Solar Now Program to build the largest solar energy project in the City's history, a 2.25-megawatt solar project on a City-owned landfill. ECO has productively worked with We Energies to propose a new Renewable Pathway Tariff (PSC Ref# 443104) that would allow the City to procure up to 100% of its electric power needs from new renewable energy sources and utilize local labor. If approved by the PSC, the City and other large institutions should use this opportunity, or other new options that may become available through state policy, to achieve or exceed the 25% by 2025 goal.

8. NATURE IN THE CITY

Conserve natural habitats and reintroduce native trees and plants to areas overwhelmed with paved surfaces.



View of city gardens from above. Photo Credit: Steve Bell.

Importance

Reducing greenhouse gas emissions is critical to addressing climate change, but it is not the only strategy that must be enacted. Climate change is the dangerous result of natural carbon, water, nutrient, and energy cycles that humans have disrupted at a large scale. Climate change cannot be fully addressed unless society reestablishes environmental equilibrium, which can only be accomplished by protecting and restoring natural ecosystems and biodiversity.

Extreme heat and heavy rainfall events are the two primary ways by which Wisconsin sees the effects of climate change, and both can be mitigated by increasing nature in the city. Our state has become 2.12 degrees Fahrenheit warmer since the 1950s, and by 2050, Milwaukee and the surrounding region will have three times as many days with a heat index above 105 degrees Fahrenheit.[55] The city's annual precipitation has increased by about 4.5 inches, or 15%, in the last 70 years,[56] and the Midwest has seen a 37% increase in very heavy precipitation events over a 64-year period;[57] these trends are projected to be magnified this century due to climate change.

Even as the City and County strive to reduce greenhouse gas emissions by 45% by 2030 and achieve net-zero emissions by 2050, flooding and heat will negatively impact human health and local ecosystems. Nearly 50% of Milwaukee is covered in buildings or impervious pavement.[58] With nowhere to go, floodwaters can overwhelm sewer systems, damage property, contaminate drinking water with pollutants and bacteria, displace residents, and leave behind mold that causes respiratory problems.

Extreme heat kills more people in the state than all other weather disasters. By 2050, Wisconsin will experience nearly 20 days of heat waves a year due to climate change.[59] Excessive heat puts Milwaukee residents without air conditioning and outdoor workers at high risk. In contrast, those who can afford air conditioning will use it more frequently, producing more pollution when fossil fuels are burned for energy generation. Pollutants and toxic particles raise the risk of respiratory disease and worsen the urban heat island effect. Asthma and other respiratory illnesses are expected to become more prevalent and severe if current trends continue. Cities like Milwaukee suffer from the heat island effect when a lack of trees combined with an excess of pavement increase temperatures as compared to more natural areas. The result is an urban environment with dangerously hotter temperatures. According to the EPA, dense, hardscaped areas can become up to 22 degrees Fahrenheit hotter than surrounding communities with more trees and green space.[60] Diseases and pests have killed tens of thousands of trees since the 1950s, greatly reducing urban shade. The threat of new and worse diseases and pests increases as the climate changes.

Equity

A 2020 analysis of U.S. cities revealed that heat islands are concentrated in low-income areas and communities of color where trees and vegetation are scarce and discriminatory housing policies and planning were common.[61] The City of Milwaukee's average tree canopy coverage is approximately 25%, but in the three lowest-income zip codes, tree coverage is much less. 53233 has tree coverage of only 7%, 53205 has 15%, and 53206 has 22%.[62] In these communities and those adjacent to them, where tree coverage is low and residents have less access to air conditioning, residents are significantly more vulnerable to heat-related illnesses and even death.

Vulnerability to flooding is also not equitably distributed across the city. According to a recent case study on environmental justice and urban flood risk, flooding in Milwaukee is likely to disproportionately impact vulnerable communities and Black residents unless these communities are prioritized for solutions.

The lack of trees and excess amount of pavement directly affects children of color. Schoolyards have a traditional design of large parking lots that double as recess areas. Fortunately, excellent work is being done by Milwaukee Public Schools, the Green Schools Consortium of Milwaukee, the City of Milwaukee, and the Metropolitan Sewerage District to change this model and begin to incorporate nature back into school playgrounds and outdoor classrooms.

Children learning in Hawthorn Elementary's green schoolyard. Photo Credit: Refllo.

Resilience

Healthy natural ecosystems provide clean water and healthy food, improve air quality, protect and steward biodiversity, and offer many other cultural, spiritual, aesthetic, and mental health benefits. The cooling benefits of trees through shade and carbon storage can counteract the negative impacts of the urban heat island effect. Maintaining existing natural areas where possible also benefits stormwater management and decreases flooding because water has the ability to soak into the ground.

Studies, like the 2020 Nurtured by Nature Report from the American Psychological Association, show that connections to nature are essential to human well-being.[63] Conserving natural habitats and reintroducing native trees and plants to our schoolyards, parking lots, and other areas overwhelmed with paved surfaces is one way to help Milwaukee residents reconnect with nature.

City Strategy

The City's strategy for nature in the city is organized by an approach that is four-fold. Overall, the priorities focus on expanding tree canopies, reducing pavement coverage, and designing green spaces for rain absorption. The strategies lower urban heat, reduce the impacts of flooding, and improve public health.

1. Protect Environmentally-Sensitive Lands

The City will prioritize protecting environmentally-sensitive lands from urban intrusion. In addition, the City or non-profit agencies will manage Natural Areas and Critical Species Habitats, as well as primary environmental corridors, secondary environmental corridors, and isolated natural resource areas, as defined by the most current version of Southeastern Wisconsin Regional Planning Commission's (SEWRPC) *Natural Areas Plan*.

To date, the City and County have acquired many, but not all, of the lands recommended by SEWRPC for acquisition. Four remaining parcels in the City of Milwaukee and 25 remaining parcels in Milwaukee County can be targeted for acquisition for conservation. While the emphasis is on acquiring these parcels, it is also important to have plans in place to effectively manage all 110 Natural Areas and Critical Species Habitat Areas to maintain their conservation values. See SEWPRC's 2010 Plan Amendment for the Natural Areas and Critical Species Habitat Areas Reference Table.

2. Expand the Green and Healthy Schoolyard Redevelopment Program

The City will ramp up the Green and Healthy Schoolyard Redevelopment Program to double the impact by 2030 for Milwaukee Public Schools (MPS) with more sustainable sources of annual funding and synergistic programming. Doubling the impact means that 10 schools per year will be served by the program.

MPS owns over 500 acres of impervious land. Among its 160 schools, MPS serves 70,000 students: 90% people of color, 66% economically disadvantaged, and 20% with special needs.[64] This population benefits from the Green and Healthy Schoolyard Program. In addition, school staff and neighborhood residents also benefit. The program works by replacing large expanses of deteriorated asphalt playgrounds with rain gardens and other green infrastructure, as well as trees and pollinator-friendly habitats, outdoor classrooms, and natural play areas.

Green schoolyards make it possible for children who live and recreate within the city to experience the emotional and physical benefits of spending time outside in nature. The more exposure children have to nature at school, the more likely they will continue to engage in outdoor play. Natural spaces like green

Children learning in outdoor classroom. Photo Credit: Refllo.

schoolyards can provide students and their families with proven positive mental health outcomes such as reduced depression and anxiety symptoms and improved mood and cognitive functioning, especially in areas of the city that already experience higher levels of poverty, violence, and stress.

Research conducted by the Hong Kong University of Science and Technology and the University of Colorado-Boulder has demonstrated that direct experiences in nature during childhood can lead to greater empathy for the environment. Given the disproportionate effects of climate change on our underserved neighborhoods, a citywide effort to equip our younger citizens with knowledge about and care for the environment is imperative for future environmental stewardship efforts.

This program also has benefits beyond the schoolyards due to the potential for more green jobs like civil engineers and planners, depaving contractors, landscape maintenance workers, forestry contractors and workers, and green infrastructure designers and installers who all have a hand in the success of this strategy.

3. Implement the Branch Out Milwaukee Campaign

The third strategy is to implement the Branch Out Milwaukee Campaign as outlined in the *Branch Out Milwaukee Master Plan* developed with input from more than 30 governmental, non-profit, and community partners. The plan centers on developing community-based partnerships and projects to build an understanding of the social, health, economic, and environmental benefits of the urban tree canopy. Objectives of the Branch Out Milwaukee Campaign are: maintaining Milwaukee's existing canopy,

Improved landscaping at On the Mill commercial parking lot.

planting trees by community-defined priorities, and employing residents for community organization and education, tree planting, and tree maintenance work needed to maintain and expand Milwaukee's tree canopy.

Communities with healthy trees experience improved air quality, greater physical activity, reduced cardiovascular and respiratory disease, decreased stress, improved childbirth outcomes, and improved mental health. Trees and plants also offer climate change mitigation by removing carbon from the atmosphere and storing it within living structures.

Work is already underway in Sherman Park. The Branch Out-Sherman Park project is a pilot project that began in 2022 by Milwaukee Water Commons in partnership with the Sherman Park Community Association, ECO, and the City's Forestry Division. The pilot project will educate residents about the multiple benefits of an urban tree canopy, develop and train a neighborhood Tree Board to guide neighborhood tree canopy priorities, and plant trees in selected vacant lots. Additionally, the plan will employ a local landscape company to maintain the trees, offer free tree assessment services to local homeowners, provide subsidies for recommended tree maintenance, and inventory trees for Wisconsin's Community Tree Map at participating homes.

4. Incentivize Green-Cooling Commercial Lots

The City will explore incentivizing private commercial property owners to de-pave portions of their parking lots and replace them with native trees and plants to help curb urban heat, reduce flooding, beautify the city, and increase biodiversity. Social vulnerability variables will be incorporated into the Green-Cooling Commercial Lot Program to recognize the disproportionate impact of flooding on vulnerable communities and communities of color, as documented in the recent Urban Systems Lab study of the City of Milwaukee. [65]

This program will use tools, including the Tree Equity Score and the forthcoming State of Wisconsin Environmental Equity Tool, in combination with SEWRPC's map to identify and prioritize private commercial parking lots in low-income neighborhoods with a high heat risk index and a low Tree Equity Score. Priority will be given to applicants with commercial lots located within these areas. The City can work with Business Improvement Districts to engage property owners and create jobs in partnership with equity-focused landscape contractors, such as Walnut Way, Cream City Conservation, and Groundwork Milwaukee. The Green-Cooling Commercial Lots Program replaces the City's former Green Lots Program and is designed to remove barriers to participation. The program incorporates stakeholder feedback and offers reimbursement funds on a rolling basis rather than strictly upon project completion.

COMMUNITY VOICES

"Increasing the amount of nature in the city will benefit my mental health. Concrete landscapes are depressing, especially when they are deteriorating and in the winter when things are cold and gray. Vegetation that supports life and creates a soft, lush, and colorful landscape will be uplifting."

"These projects don't only help our schools receive a new and better playground, they are also helping the environment and making a positive change in our communities."

"I am not going to litter because water carries trash down hills into the river or lake."

"I am going to remind my family that our choices affect more than just ourselves. Everything is connected.

"Green spaces build habitat for wildlife and carbon-absorbing plants. They help with soil retention as well as slow storm runoff. More trees reduce urban heating. Trees reduce carbon in the air and soil. Less carbon-releasing means less respiratory health problems/costs. Parks give spaces for low-income families, places for recreation, and cooling spaces in the increasingly hot/long summers."

Bay View Montessori Green and Healthy Schoolyard

Reflo details the following as the vision for the updated schoolyard: "Bay View Montessori wants to create a schoolyard that speaks to teachers and allows for natural exploration, important to Montessori pedagogy. We envision our schoolyard to become a community space that neighbors visit and an important water reclamation site for Lake Michigan. The ripple effect from this project will inspire students to become environmental and community stewards."

Read more about Bay View Montessori and other green schoolyards at refloh2o.com.

Photo Credit: Reflo.

LEADING BY EXAMPLE

Listed below are some examples of previous projects aligned with nature in the city priorities. The City will consider replicating or expanding activities and projects related to these in the future:

- In 2019, the City adopted its Green Infrastructure Plan. The term green infrastructure is used to describe a variety of practices, from permeable pavement to rain barrels and rain gardens, that help reduce flood risk and water pollution by increasing the infiltration of stormwater into the soil or capturing and storing stormwater for later use. By 2030, Milwaukee will add approximately 36 million gallons of stormwater storage by implementing green infrastructure. This is the equivalent of adding 143 acres of green space throughout the City. Resilience Ambassadors can help promote the benefits and accessibility of green infrastructure at scales both large and small.
- In 2007, Milwaukee County adopted a resolution known as the Green Print, outlining 16 different initiatives. Among the goals is to return passive use of park land to native grassland and prairie reserve areas. The Parks Department has identified underutilized turf areas and converted them to trees and grasslands, partially through the USDA Conservation Reserve Program. Parks Natural Areas staff have also expanded the pollinator gardens in the parks.
- In 2021, City Forestry Services obtained a $25,000 increased budget allocation for a pilot program to establish two wildflower planting beds, one in a northside and one in a southside location. The wildflower gardens will replace turf grass and are expected to result in lower lawn mowing costs.
- The Milwaukee River Greenway is a success story of many partners coming together to protect a stretch of environmental corridor along the Milwaukee River and make it accessible for light recreation.
- Green-cooling commercial lot projects were implemented at 5601 N. Hawley Road and 1701 W. North Avenue.
- The Cooper Park Pollinator Project is maintained by the Friends of Cooper Park.

9. WASTE REDUCTION & SUSTAINABLE CONSUMPTION

Feed hungry people, reduce waste, and promote more sustainable consumption in the public, private, and non-profit sectors.

Food pantry.

Importance

In our modern systems, society's creation of huge streams of waste has become normalized. Overproduction of food, packaging, and disposable goods represents results in the loss of natural resources and money, especially loss of energy and water resources used to produce them. Single-use plastic bags and food packaging often become litter in the City's streets and rivers. Over time, the health of both our society and ecosystems have suffered due to accumulation of waste materials. Once sent to a landfill, organic waste such as food scraps decompose to release methane, a highly potent greenhouse gas. According to the EPA, methane is over 25 times more potent at trapping heat in the atmosphere as carbon dioxide, making it an especially powerful contributor to climate change.[66]

Systems and tools are needed to reduce usable solid waste streams, create new value for Milwaukee, and greatly lower the volume of materials being sent to landfills. The primary focus is reducing food waste from large institutions, with secondary strategies addressing the problems of plastic food packing and the major greenhouse gas emissions from cement. Food waste is a central topic that addresses both climate and equity issues. The United Nations estimates that, globally, a third of the total food produced for human consumption is wasted. Food waste results in enormous methane emissions as it decomposes and exacerbates food insecurity as edible food is disposed.[67] Recognizing the enormity of this issue, the U.S. Department of Agriculture has set a goal of reducing food waste 50% by 2030 and has established grant programs to aid local governments and non-profits in working toward this goal.[68]

In Milwaukee, food waste and yard debris make up to 24% of the waste stream.[69] Reducing organic waste is a significant opportunity to reduce greenhouse gas emissions. In 2021, the Wisconsin Department of Natural Resources released an updated *Waste Characterization Study* that provides regional breakdowns. The Southeast region, which includes the City of Milwaukee, produced 15.4% food waste, higher than the state as a whole.[70] Milwaukee has significant potential to reduce food waste while also creating systems to address food justice.

Landfill.

Equity

Food access is not equitable, with many members in the community unable to obtain or afford healthy food. Locally produced food is often more expensive and more difficult to find than food transported from long distances across the country or the world. Food deserts are geographic areas where the absence of grocery stores within a convenient traveling distance limits residents' access to healthy and affordable food options. In Milwaukee, food deserts are prevalent in communities of color and low-income areas. Many organizations are working to address food insecurity in Milwaukee, including Hunger Task Force, Feeding America, an extensive network of food pantries, gardening groups, and farmers markets.

Food justice seeks to ensure that the benefits and risks of where, what, and how food is grown, produced, transported, distributed, accessed, and eaten are shared fairly. Food justice represents a transformation of the current food system, including, but not limited to, eliminating disparities and inequities. As climate change continues to negatively impact agriculture through more frequent and intense storms, heat waves, pests, diseases, flooding, and more, it is important that food justice is addressed.

Resilience

Resiliency is about helping the community through challenging circumstances like weather disasters that will become more common because of climate change, or other disruptions to life like the COVID-19 pandemic. Developing better systems to feed hungry people in times of acute economic distress can help Milwaukee families when they are most in need.

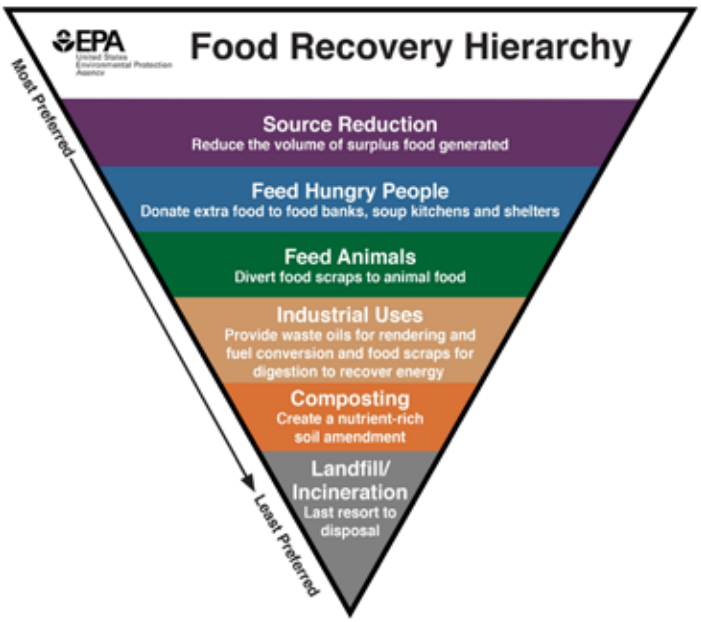


Photo Credit: EPA


Young person looking at vegetables.

COMMUNITY VOICES

"Food inequity and food insecurity must be addressed. This issue affects people's health. Poverty and access to healthy food are big parts of the problem. Food being shipped long distances creates greenhouse gas emissions. Food going to landfills creates methane."

"Creating a system to send surplus food from restaurants and grocery stores to those that are food insecure, instead of throwing it away, will greatly benefit my community. I can't believe how much food is currently being wasted while so many are hungry!"

Food Recovery Hierarchy

The EPA's Food Recovery Hierarchy prioritizes the avenues for food waste reduction. Collectively, these uses form an order for the preferred ways to deal with excess food and food waste. At the top of the hierarchy is source reduction, or reducing the amount of extra food being generated, which is difficult for local governments to address given that food production happens primarily in the private sector supported by state and federal policy. Feeding hungry people is something that local governments do have some control over. The least preferred method of dealing with food waste is sending it to a landfill. If source reduction is not possible, and food waste cannot be used to feed people, food waste can be used to feed animals or for industrial uses. Composting is another potential avenue for food waste. Composting converts organic material, including food scraps, yard waste, and more, into a usable soil amendment that can be used to grow new food and other plants. Composting is a sustainable way to recycle the nutrients from food and is preferred to sending organic waste to the landfill.

City Strategy

Food Excess Equitable Distribution (FEED) MKE is a conceptual public-private partnership with the mission to reduce food waste sent to landfills. The collaborative effort can be initiated by the City, County, and/or UW Extension Milwaukee County. FEED MKE prioritizes source reduction and feeding hungry people, the preferred uses listed in EPA's Food Recovery Hierarchy. The name FEED MKE emphasizes the collaboration's aim of promoting equity by improving access to healthy foods, prioritizing vulnerable communities, and eliminating barriers. Collaborative outcomes include reducing food insecurity and improving public health.

Grocery stores, restaurants, institutions, and large events typically purchase more food than they can sell or use, which provides an opportunity for redistribution. FEED aims to adapt policies and technology tools to make it easier to collect unused food while the items are still safe, healthy, and edible. FEED MKE will extract, or glean, food from various sources, such as vegetables from yards and gardens, fruit from trees, and usable products from businesses. The collaboration will also address legal

and policy issues, like removing barriers to food donation and improving food labeling. In addition, FEED MKE will include public outreach to educate businesses and consumers on the issue.

Building Partnerships

The FEED MKE collaboration will build upon existing organizations and programs to further reduce or prevent food waste, recover or rescue surplus food, and feed hungry people. In addition, partnerships should establish and support local, distributed growing operations to empower individuals and groups to engage in sustainable food production. When food is grown on-site, people are less dependent on disruptions to the global food system. One example to consider is Fork Farms' scalable hydroponic technology. Another example is supporting subscription-based services such as Imperfect Foods.

The City, County, and/or UW Extension Milwaukee County should explore initiating FEED MKE by convening businesses, non-profits, philanthropies, governmental agencies, and interested citizens. A Food Waste/Food Security Summit could kick off the collaboration across the following agencies:

- Gleaning Milwaukee Coalition
- Hunger Task Force
- Feeding America
- Anti-poverty agencies like Community Advocates and the Social Development Commission
- Philanthropies interested in promoting food justice
- Universities with student or teaching resources/ personnel

Operations and Measurement

During an approximately two-year organizing period, the structure and operations of the collaboration must be defined. The quickest way to ramp up food recovery is to fund a full-time staff person or contractor with one of the partner organizations. The Gleaning Milwaukee Coalition aspires to redistribute food from new sources such as businesses and institutions that are not currently involved with food rescue and distribution. The Coalition currently has

Fresh produce.

volunteers, but no staff. Staff should operate under the guidance of a board or steering committee. The creation of neighborhood food hubs may also be a useful model to explore. See the Recipe for Success graphic for an example of food hubs in Milan, Italy. FEED MKE will offer programs that make the most of existing knowledge, capabilities, and assets from non-profits, businesses, and government. New tools and resources may be created to complement or expand existing programs.

Identifiable Quantitative Outputs

FEED MKE's key output is a reduction in solid waste sent to landfills. A 20% reduction in solid waste generated by 2025 and a 25% reduction by 2030 would have multiple benefits, including cost savings for tipping fees at landfills along with reduced greenhouse gas emissions. Sample measures and mechanisms for tracking success will need to be developed and refined further. For example, the City tracks materials picked up for single-family residences, but no methods currently exist to track the materials picked up by private trash haulers at multi-family buildings or commercial establishments. Food scraps, defined as food no longer edible for human consumption, can be sent to farms for animal feed or to large-scale composting operations, but the means to measure these wastes also needs to be identified.

Education and Outreach

FEED MKE should develop an education and outreach campaign to encourage residents, restaurant owners, grocery stores, and institutional cafeterias to more accurately manage the amount of food they prepare relative to demand. The campaign should draw on existing assets, campaigns, or challenges. Two examples are the Natural Resources Defense Council's (NRDC) Save the Food Campaign and the Nashville Mayor's Food Saver Challenge, which engages local businesses to prevent wasted food, donate surplus food, and recycle food scraps.

Educational assets can be delivered through various media including print, web, mobile, signage, and video, and should be customizable for individual communities and partners. A dedicated web resource will be an important tool to provide access to program information and resources, such as food storage guidance, recipes, waste audit tools, cost

Graphic by GRAEF.

calculators, games, and activities. Education and outreach with schools will further advance food waste reduction behavior for the next generation. Compost projects can be supported at schools through the Green Schools Consortium.

Policy Considerations

Further research of potential policy changes is needed to advance FEED MKE. Considerations include:

- Identifying the types and volumes of food that could be rescued. Starting points include the DNR 2021 Waste Characterization Study, self audits, and reporting by businesses through tools such as those developed for the Natural Resources Defense Council's Save the Food Campaign.
- Identifying barriers and opportunities for food donation, handling, and distribution. Focus groups should be convened with individuals and organizations currently rescuing food and distributors such as restaurants, grocery stores, food banks, and pantries.
- Identifying ways to encourage, incentivize, and/or provide technical assistance to businesses for greater adoption of food donations and composting practices.
- Identifying legislation and ordinances that are currently barriers to the recovery and distribution of excess food. Model ordinances have already

been written by Natural Resources Defense Council and other organizations. Some changes in state law may also be required.

- Identifying standards for food storage, transportation, and handling. Standards should be established with input from health inspectors and food safety experts throughout Milwaukee County.
- Identifying possible mandates. Milwaukee County could adopt an organic waste ban or mandatory diversion policy that includes an enforcement mechanism.
- Identifying lessons learned through the City's Fresh Food Access Fund. The Fund has offered grant support for two years.
- Identifying lessons learned by municipalities currently working with Natural Resources Defense Council and participating in Save the Food efforts.

Funding Sources

Making FEED MKE operational will require resources and funding. Multiple U.S. municipalities have launched Save the Food programs, which can be referenced for ideas on resourcing. The following list includes options for available funding for planning/ program development and implementation of the collaborative:

- The City should continue its annual budget allocation of $100,000 for Fresh Food Access and use all or a portion to fund FEED MKE. Community Development Grants through the City or County could also be used.
- Milwaukee County's allocation of federal funds (e.g., ARPA, CARES, Infrastructure) could be accessed for this purpose.
- USDA and EPA grants are available when units of government are the applicants. Funding should include paid participation by collaborators.
- The State of Wisconsin could fund FEED MKE as the pilot food waste project recommended in the Governor's Climate Change Report.
- NRDC, ReFED, and other non-profits have staff that can be consulted and resources that can be distributed to Milwaukee. NRDC's Save the Food Program is a noteworthy example.

Shoveling compost.

Recycling truck.

- Private or local corporate foundations focused on food, equity, and economic issues may provide funding. Non-profits may apply on behalf of the collaborative.

Waste Reduction Strategies

The following strategies related to other forms of waste reduction should also be explored:

1: Create a Community-Wide Reusable Food Service Container System

Under this strategy, a private sector service provider would deliver clean containers to grocers and restaurants, pick up dirty containers, and take them to a secondary location to wash and sanitize them. Grocers and restaurants would pay a service fee to use the containers to package to-go orders or various food products. Users either pay a flat rate subscription fee to take part in the program or pay a deposit upon receipt of a container, which is refunded when the container is returned. Containers should be durable and dishwasher safe, but also recyclable in the event that a container is broken, worn out, or discarded.

2: Improve the Recovery Rate and Quality of Recycled Materials in Milwaukee

The infrastructure and staff needed to collect and process recyclable materials already exists. Capturing greater economic value from these assets requires recovering more already-recyclable materials and ensuring those materials are as free of contamination as possible. Funding for public outreach and education, along with a concerted effort to align messaging and bin design with adjacent suburbs, is key to making it easier for residents to participate correctly.

3: Promote Composting of Food and Other Organic Wastes

Developing a county-wide organics collection system is an important long-term objective. Any municipality in the County could initiate the effort and develop a model for others to use. Composting organic wastes that cannot be rescued for human or animal use will reduce greenhouse gas emissions by keeping those wastes out of landfills. In the absence of large-scale composting, the City will explore supporting home or smaller-scale composting with guidance on practices stated in an ordinance and

through educational demonstrations. Organizations such as Groundwork Milwaukee, UW Extension, Master Gardeners, Kompost Kids, Keep Greater Milwaukee Beautiful, schools, and universities can run classes and promote backyard composting.

4: Support Private Sector Efforts to Build a Circular Economy

The City will explore means to encourage waste and emissions-reduction objectives in the private sector. Many consumer products are made from natural resources and disposed of in landfills. Manufacturers of consumer products often do not design products that can be easily repaired, recycled, or disassembled at the end of their useful life. In contrast to this linear life-cycle of consumer products, the EPA defines a circular economy as one that "uses a systems-focused approach and involves industrial processes and economic activities that are restorative or regenerative by design, enables resources used in such processes and activities to maintain their highest value for as long as possible, and aims for the elimination of waste through the superior design of materials, products, and systems (including business models)."[71] Creating a circular economy is a larger process than can be tackled by Milwaukee alone. The City can, however, support economic incentives for companies that build products from recycled materials and encourage sustainable business practices.

Agencies Promoting Circular Economies

- Wisconsin Sustainable Business Council
- WasteCap Resource Solutions
- The U.S. Green Building Council

5: Supporting Sustainable Consumption

The world's population is continuing to grow beyond eight billion people. The earth's ecosystems and natural resources cannot indefinitely support this many people if everyone consumes and disposes of products at the rate industrialized nations have for the last 50 years. The Urban Sustainability Directors Network has developed a Sustainable Consumption Toolkit that provides an economic model and strategies for cities and households to meet their human needs through sustainable consumption practices. Learn more at sustainableconsumption.org.

Embodied Carbon in the Transportation Sector: Concrete Climate Ideas from Girl Scouts, Troops 1477 and 1953

You may be surprised to know that the asphalt that gives our roads life, the steel that gives our bridges height, and the concrete that boosts our sidewalks can be hiding a devious contributor to climate change known as embodied carbon. It refers to the greenhouse gas emissions that stem from the manufacturing, transportation, installation, maintenance, and disposal of the materials used to build our transportation networks and our buildings. This differs from what we commonly understand as operational carbon, or the greenhouse gasses we produce directly when using electricity or driving a vehicle. Embodied carbon is somewhat hidden from mainstream view, but it's no less important in our mission to reduce emissions. The bad news: there's a lot of embodied carbon in our landscape. Estimates from the MIT Sustainability Hub Report find that concrete alone generates as much as 8% of global emissions.[72]

Now time for the good news: there are many ways to reduce the amount of embodied carbon from construction materials. MIT Climate Portal reports some varieties of low-carbon concrete can use new recipes for cement, an important ingredient in concrete, that emit around 10% less in carbon dioxide. In addition, industry is innovating new ways to capture carbon dioxide when making cement, or any other industrial process, that can be mineralized and become part of the finished concrete itself (in other words, permanently stored).[73] Peer cities across the country are undertaking efforts to reduce embodied carbon. The City will test low-carbon concrete on a Public Works project and, if successful, the City will explore updating its purchasing ordinances for construction materials to potentially require Environmental Product Declarations.

10. RESILIENCE AMBASSADORS

Highlight equity-specific strategies and develop a Resilience Ambassadors in order to educate, adapt, mitigate, and prepare for the impacts of climate change on the City's infrastructure and people.

Sherman Park proclaimed an ECO Neighborhood.
Photo Credit: David Thomas.

Importance

The *Climate and Equity Plan* seeks to address the root causes of climate change by reducing greenhouse gas emissions in our community, an action referred to as climate change mitigation. The City of Milwaukee, along with other governments across the world, are working to slow the pace of climate change in an effort to avoid worst case scenarios. This plan was also developed with the recognition that the climate is already changing in dangerous ways and that the City and its partners can help residents and businesses prepare for these changes. Preparing residents and the community for climate change is also called climate adaptation or resilience. Every chapter in this plan includes elements that support climate resilience. For example, strategies for Big Idea #8: Nature in the City will reduce the urban heat island effect by cooling the city in the summer and reduce flood risk using nature-based solutions that absorb stormwater. Home energy efficiency retrofits outlined in Big Idea # 2: Healthy Homes Energy Upgrades include insulation and heat pump technology that can keep residents warm in the winter and cool in the summer. In addition to these strategies, other intentional effort is needed to help residents prepare for the long-term impacts of climate change and protect themselves during climate crisis events like extreme storms and heat waves.

Despite the increasingly prevalent impacts of a changing climate, many Milwaukee residents, particularly those living in underserved communities, need additional support to protect themselves, their homes, and the city they love. While local, state, and federal governments can create programs to assist residents, public communication and promotion about available programs and resources is often underfunded. As a result, many residents do not know about existing programs or new initiatives, and they may face administrative or other barriers to participating in such programs. Resilience Ambassadors can connect the dots between policies and programs that can support, encourage, and inspire large-scale action. Particular focus is geared towards supporting the city's most underserved and at-risk community members and unraveling decades of environmental injustice.

City Strategy

All of the policies and programs outlined in the Climate and Equity Plan require ongoing education, outreach, and collaboration with residents, businesses, and community partners. Engagement will be achieved through a combination of digital and traditional media, as well as by building relationships between residents and their government. City agencies, elected leaders, and non-profit partners will engage in regular communication with residents and community-based organizations about available programs through the ECO Neighborhoods Initiative. Outreach will also include proactive engagement around future programs, policies, and projects to best incorporate resident feedback and adjust accordingly.

Resilience Ambassadors

The ECO Neighborhoods Initiative will be utilized to grow and coordinate the existing network of organizations that currently serve as informal Resilience Ambassadors in Milwaukee.

The ECO Neighborhoods Initiative

The ECO Neighborhoods Initiative is a committed partnership between ECO and a team of neighborhood sustainability ambassadors made up of local organizers, community leaders, and residents. The neighborhood team facilitates environmentally-friendly events, beautification projects, and other actions to make their neighborhoods more climate resilient, prosperous, and attractive. Currently, ECO supports ambassadors by providing funding, education about City programs, and connection to community-based organizations to further support their work. Moving forward, ECO will rename team members as Resilience Ambassadors and continue to provide education and connections to increase neighborhood climate resilience.

The Resilience Ambassadors Network

Milwaukee is fortunate to have many reputable organizations providing outreach to help build the city's resilience to climate change and related issues. In addition to creating the new title of ECO Neighborhoods Resilience Ambassadors, ECO will establish new partnerships with trusted, community-based organizations and strengthen existing partnerships to more efficiently serve the public. Organizations will be invited to participate

Current ECO Neighborhood, Sherman Park, Resource Fair.

in a Resilience Ambassadors Network to encourage collaborative work versus siloed efforts. The network will focus on establishing regular communication between partners, streamlining public engagement efforts, keeping members informed about new and existing programs, resources, and funding opportunities, and more.

The Resilience Ambassadors Network's overarching purpose will be to establish greater trust and collaboration among organizations and communities while ensuring resources and programs are distributed more equitably throughout the city. Examples of non-profit organizations and governmental agencies that can achieve more by working together include: ECO, the Milwaukee Metropolitan Sewerage District, the Milwaukee Health Department, the Department of Neighborhood Services, Walnut Way Conservation Corporation, Groundwork Milwaukee, Clean Wisconsin, Milwaukee Riverkeeper, Milwaukee Water Commons, Sixteenth Street Community Health Centers, Sherman Park Community Association, and various faith-based organizations, among many others.

Resilience Ambassadors working through the ECO Neighborhoods Initiative will be able to

COMMUNITY VOICES

"We must care for the earth and love our neighbors equally for all humanity to live a life."

"Milwaukee Public Library should create community education for children and adults about likely climate change in Milwaukee and how to prepare."

"I'm tired of living in one of the worst cities for Black people. I hope that by incorporating equity into this plan real benefits will come to communities of color and that systems of oppression will be eliminated. Milwaukee has been one of the most segregated cities for a long time. It's about time substantial efforts are made to redress this."

"Prep to receive international newcomers. We should get ready to orient incoming foreign climate migrant and refugee families to Milwaukee's culture and resources by developing Welcome to Milwaukee orientation education and resources. Foreign newcomers need to learn about living in Milwaukee and Milwaukeeans need to know a service exists that is orienting new immigrants to our culture as smoothly as possible."

provide residents with the following resources that outline a full range of government and non-profit programming:

- The *ECO Healthy Homes Guide* provides practical tips and resources for residents to improve their home environment by addressing nine common health hazards, providing ways to increase energy and water efficiency, and more. The guide prioritizes protecting public health, helping the environment, saving money, and increasing resident well-being.
- The *ECO Neighborhood Toolkit* offers environmental information and local resources to guide communities and neighborhood organizers in their environmental sustainability journey.

Secondary Resilience and Climate Adaptation Strategies

Other resilience ideas that were discussed as part of the City's community engagement efforts on this plan include:

- Working with the Milwaukee County Extreme Heat Task Force to coordinate strategies for protecting the most vulnerable residents.
- Identifying City and County-owned buildings where roofs can be painted white (or similar treatment) or a green vegetative roof can be added to reduce the urban heat island effect.
- Explore managing the 500-year floodplain for new development in Milwaukee County.
- Continuing to implement the City of Milwaukee *Green Infrastructure Plan* with its goal of capturing 36 million gallons of stormwater with green infrastructure by 2030.
- Engaging the Wisconsin Local Government Climate Coalition on best practices for climate resilience.
- Supporting the *Milwaukee Metropolitan Sewerage District Resilience Plan's* recommendation to analyze electric, gas, and other utility infrastructure for climate vulnerabilities.
- Coordinating with local health departments and organizations on campaigns to increase public education around diseases spread by mosquitoes and ticks that could become more prevalent due to climate change, including West Nile Virus, Lyme Disease, La Crosse Encephalitis, and other vector-borne diseases.
- Reducing the risk of food insecurity in Milwaukee by supporting statewide efforts for sustainable food practices including:
  - Supporting good farming practices as recommended by the State of Wisconsin Climate Change Task Force.
  - Supporting the Southeastern Wisconsin Regional Planning Commission's *Regional Food System Plan*.

LEADING BY EXAMPLE: Collaboration Brings Results

Milwaukee area non-profit organizations are working together to organize and improve quality of life in Milwaukee's neighborhoods. Walnut Way Conservation Corporation has been a leading environmental justice organization working to improve Lindsay Heights while employing people from the neighborhood. Teaming up with ECO and the Institute for Sustainable Communities, Walnut Way helped Lindsay Heights earn Milwaukee's first ECO-Neighborhood designation through collective work on Fondy Park and other area pocket parks and orchards, which included building green stormwater infrastructure. The partnership also brought about Milwaukee's first resilience hub at the Wellness Commons.

Sherman Park has become Milwaukee's second ECO Neighborhood through leadership by the Sherman Park Community Association, residents, and local churches that have coordinated beautification and education activities with ECO, Milwaukee Water Commons, and other local agencies focused on environmental sustainability. With coordinated action, these partners are making visible and long-lasting improvements at the neighborhood level. Learn more at milwaukee.gov/ECONeighborhoods.

Oak Leaf Trail.
Photo Credit: VISIT Milwaukee.

IMPLEMENTATION

The *Climate and Equity Plan* is the foundation for climate action in the City of Milwaukee. Making its vision a reality requires ongoing attention, planning, work, and action that delivers better outcomes for Milwaukee. Implementation and accountability results from clear policy direction from elected leaders and top government administrators, effective program design, funding support, effective coordination with non-profit partners, and other factors. Accountability also comes from an active citizenry that prioritizes and vocalizes the continued need for climate and equity action and who are able to hold elected leaders accountable through the democratic processes. Accountability for implementation on the *Climate and Equity Plan* can also only happen when the City provides clear and regular reporting of progress and results.

The *Climate and Equity Plan* was developed to help Milwaukee use emerging federal funding opportunities from the Inflation Reduction Act and Infrastructure and Jobs Act. The Plan recognizes both the limitations of local government funding while also highlighting ways that existing local funds can be redirected to achieve both better climate results and customer service. Citizens seeking to hold both elected leaders and administrators accountable for results should do so in the context of not only what is in the plan, but also what is able to be funded. Big ideas that have been funded to create real programs should be evaluated more vigorously than aspirational ideas that do not have clear funding streams.

The *Climate & Equity Plan* can best be viewed as a **living document** that gives elected leaders and administrators a clear foundation of priorities while also allowing for creativity in the fast-changing world of federal, state, and local funding dynamics, rapidly changing technological developments that affect the plan, and other factors.

Community bike ride.

Girl watering garden.
Photo Credit: Urban Ecology Center.

REPORTING & CONTINUOUS IMPROVEMENT

The 10 Big Ideas are designed to reduce greenhouse gas emissions while improving racial and economic equity. Both of these outcomes are critical but also difficult to track. Community greenhouse gas inventories and reduction strategies are based on imperfect models. The models are instructive, but they are not precise. The *Climate and Equity Plan* was based on the greenhouse gas inventory and projections developed by ICLEI-USA. ECO is currently working with ICLEI and the Wisconsin Local Government Climate Coalition to develop approaches for more efficient data collection methods to support standardization and timely updates for greenhouse gas emissions inventories.

In developing the *Climate and Equity Plan*, the Task Force experienced difficulty in translating the 2018 greenhouse gas inventory into a dynamic model that could help forecast emissions reductions based on different program designs and funding levels. To address the need for clear accountability, dynamic modeling that can forecast the results of programs and investments, and on-going data-driven decision-making, the City needs to invest in a climate reporting dashboard. A reporting dashboard is a computer display that shows forecasted progress from known actions while also reporting on key goals, achievements, and milestones.

In 2023, ECO is entering into a one-year contract with **ClimateView** to launch a climate forecast and reporting tool. Although the Climate and Equity Plan should be implemented by all relevant City departments, ECO maintains responsibility and accountability for its programs and reporting on progress of the overall plan. Beyond 2023, the City should continue to use this or a similar dashboard tool to provide ongoing reporting. The dashboard will display the programs and initiatives outlined in the *Climate and Equity Plan* and provide on-going status updates on implementation. The ClimateView dashboard is most geared to climate metrics. The Department of Compliance and Engagement will continue to provide citywide metrics through its dashboard or other methods. Explore the ClimateView Dashboard at climateview.global.

ECO will support the following reporting standards to ensure ongoing public communication and collaboration on the plan's implementation:

- Sustainability commitments, actions, and carbon reduction displayed on the City's website using ClimateView, or a similar dashboard, that are updated at least twice annually.
- A biannual Communication File to the City's Steering and Rules Committee on the progress of the plan, with an opportunity for public comment at the discretion of the Chair.
- Updates to the City's Greenhouse Gas Inventory semi-regularly, including an update in 2024 using 2022 or 2023 data (pending availability), and in 2028.
- Periodic reporting on action progress through ACEEE's City Clean Energy Scorecard or similar national reporting efforts.

Improving Milwaukee's Performance in the ACEEE Clean Energy Scorecard Rankings

The American Council for an Energy Efficient Economy (ACEEE) produces an annual "City Clean Energy Scorecard," which it defines as "the go-to resource for tracking clean energy plans, policies, and progress in large cities across the United States. It compiles information on local policies and actions to advance energy efficiency and the move toward a cleaner electric grid and fuels, comparing 100 large cities across all energy sectors. It also assesses cities' focus on equity, policy performance, and smart growth across these sectors." The scorecard allocates points for the following five categories:

- Community-Wide Initiatives
- Buildings Policies
- Transportation Policies
- Energy & Water Utilities
- Local Government Operations

ACEEE released the results of the 2021 Scorecard, accounting for all local policies adopted by July 1, 2021, and ranked Milwaukee 53rd out of the 100 cities evaluated. The City's overall score was 25 out of a potential 100 points. Notably, Milwaukee's rank dropped 17 spots between 2020-2021. Milwaukee ranks lower than the average 30 points of many peers identified as stable-growth cities in large metropolitan areas.

Of the five categories, Milwaukee ranked the lowest in the Local Government Operations (0.5/10 points), Building Policies (4/15 points), and Transportation Policies categories, representing considerable room for improvement. There are several hindrances that may prevent Milwaukee from achieving a perfect score in these and other categories. ACEEE describes: "For example, each city's score accounts for utilities' energy efficiency investments, even if those utilities are investor owned. Each score also reflects the stringency of the building energy code in the city, even if that code is set at the state level."

The *Climate and Equity Plan* provides multiple pathways to improve Milwaukee's score and rank in the City Clean Energy Scorecard. A common critique in Milwaukee's evaluation was that ACEEE could not find information to evaluate the City's policies and programs. At the most basic level, Milwaukee can improve its score by the successful adoption and implementation of this plan: "Across all cities… analyzed, 38% of new clean energy actions were related to the creation and adoption of a clean energy plan, partnership, goal, or government procedure." By adopting the *Milwaukee Climate and Equity Plan*, ACEEE can recognize the City's commitment to clean energy and equity solutions and accurately track progress toward the goals. ACEEE also recognizes "moving forward, all cities can improve their scores by increasing their commitment to racial and social equity, adopting more mandatory policies designed to improve the energy performance of existing buildings, and adopting and tracking progress toward stringent community-wide energy savings and transportation sector goals."[74]

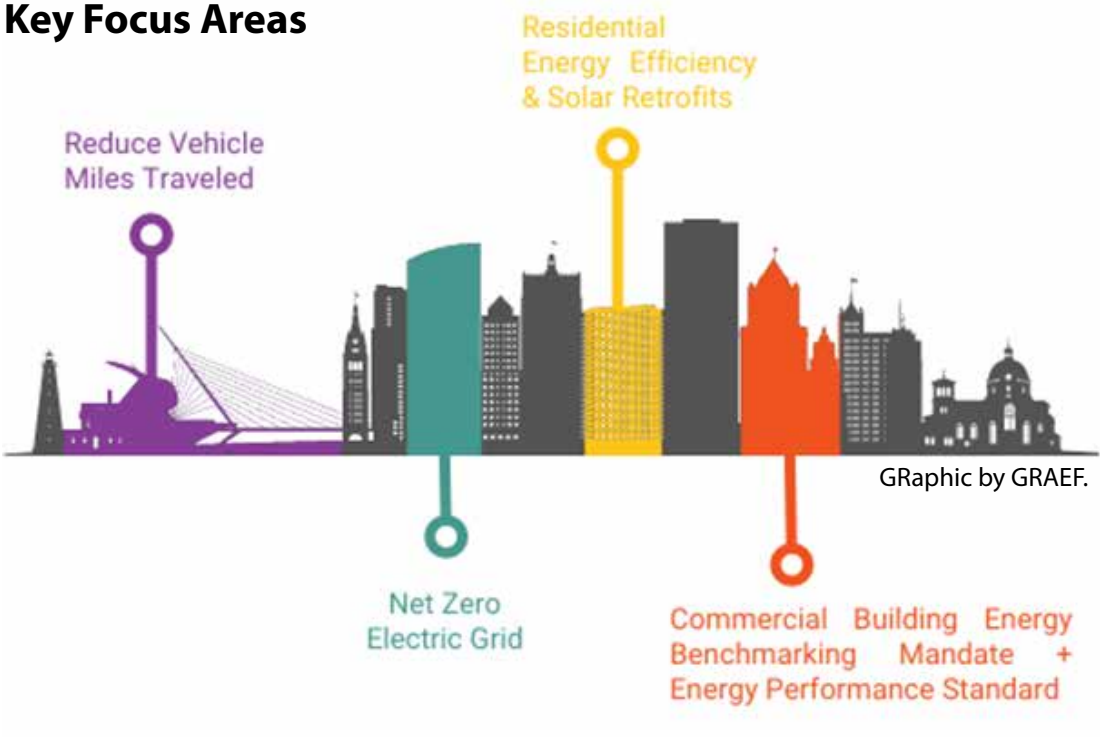
The 2023 City Clean Energy Scorecard Showed Milwaukee's Rank Dropped 17 Spots from the Previous Year

Climate and Equity Plan Impact

Within the *Climate and Equity Plan*, the City sets specific goals and key performance indicators for greenhouse gas emissions reduction, equity and economic development improvements, building energy performance, and transportation improvements:

- Greenhouse Gas Emissions Reduction Target
- Equity Target
- Big Idea: Commercial Building Energy Benchmarking Mandate & Energy Performance Standard
- Big Idea: People Centered Transportation and Urban Design (of note, ACEEE indicated that "only three cities have adopted a goal to reduce vehicle miles traveled (VMT) or transportation greenhouse gas emissions and are on track to achieve it")
- Big Idea: Electrify Transportation

Key Focus Areas



GRaphic by GRAEF.

ACEEE also awards points to cities if advocacy efforts are directed at adopting certain policies and programs. Through the *Climate and Equity Plan*, ECO has renewed and deepened the City's commitment to continue efforts to intervene in relevant dockets and cases at the Wisconsin Public Service Commission through the Wisconsin Local Government Climate Coalition. This work will focus on encouraging improved energy efficiency, weatherization, and pre-weatherization programs and policies, and for the State of Wisconsin to update commercial and residential building codes to the latest International Energy Conservation Code (IECC) and ASHRAE Standards 90.1 without amendments. Of note, ACEEE indicates: "Compared to other utilities, We Energies shows low savings as a percentage of sales for both electric efficiency and natural gas efficiency programs." ECO's efforts can help reduce market, regulatory, and information barriers to clean energy projects.

Milwaukee also stands to gain more points through the plan's focus on equity. According to ACEEE: "Only 30 of the 177 new clean energy actions were equity-driven initiatives—less than 20% of the total. Given that we increased points awarded for equity efforts, this led many cities to lose points relative to their scores in last year's Scorecard."

Regarding its position among peer cities, ACEEE recommends Milwaukee can improve its ranking through:

- Establishing goals for greenhouse gas emissions reductions in municipal operations
- Taking additional steps to ensure that builders comply with energy codes
- Adopting energy benchmarking and rental energy disclosure policies
- Enforcing mandatory or incentivizing voluntary building energy performance and location-efficient land use codes or standards
- Offering technical assistance, training, and/or funding to support existing clean energy programs or services
- Directly designing and funding projects that affect the energy use of urban buildings and transportation systems
- Establishing inclusive procurement policies or a comprehensive retrofit strategy

Riverwalk in the Third Ward. Photo Credit: VISIT Milwaukee.

Example of a Complete Street in Milwaukee.

FINANCE

The transformative change envisioned in the *Climate and Equity Plan* will not become a reality unless there is a way to pay for it. The plan will require billions of dollars in investments from governments, utilities, and the private sector. Billions of dollars are already expended annually in our economy, but in support of fossil fuel infrastructure or to repair the damage already being inflicted by climate change. Making the vision of the *Climate and Equity Plan* a reality will require a combination of new funding sources and redirecting existing expenditures.

Redirecting Existing Spending

Many of the new projects will require new funding sources. Many of the 10 Big Ideas could be supported by redirecting funding that is currently supporting the fossil fuel economy. For example, the City of Milwaukee and State of Wisconsin spend millions of dollars on road projects annually, primarily to support fossil fuel vehicles. The existing funding for these roads can be used to support the multi-modal transportation options outlined in this plan, or partially redirected to support transit. The State of Wisconsin also spends millions of dollars to expand the freeway system, which only tends to inefficiently promote exurban development while cities struggle to maintain their existing infrastructure. A fix-it-first strategy to road building that supports well-designed, local complete streets will yield healthier, more climate friendly communities.

Governments and property owners can also redirect a portion of their annual utility expenses into energy saving projects using various financing tools. Energy efficient vehicles, lighting, heating and cooling equipment, or hybrid vehicles can sometimes cost more upfront, but yield lifetime operating savings can justify the investment. The City of Milwaukee has been a leader in establishing energy finance programs to help municipal government, commercial businesses, and homeowners finance energy efficiency and renewable energy projects so they can "pay as they save" on their utility bills.

1. **Property Assessed Clean Energy (PACE) Financing** has financed more than $40 million in projects in Milwaukee and helps commercial buildings finance energy efficiency, renewable energy, green infrastructure, electric vehicle charging, and resiliency projects. PACE financing leverages private capital that ties the financing into the property, rather than the owner. Learn more at milwaukee.gov/PACE.

2. **The Milwaukee Energy Efficiency Program (Me2)** provides home energy efficiency loans for insulation, air sealing, furnaces, ENERGY STAR® windows, and other home improvements. Similarly, the Milwaukee Shines Solar Program provides loans and other resources for residential solar energy projects. Learn more at milwaukee.gov/Me2 and milwaukee.gov/solar.

3. **Energy Saving Performance Contracts** are a financing structure in which companies provide energy efficiency services with guaranteed savings. Energy Service Companies design, build, arrange financing, and guarantee the savings on their projects. The City of Milwaukee recently completed a $2 million energy saving performance contract at the Milwaukee Public Library's Central Branch.

Milwaukee's City budget is severely constrained by a host of cost pressures coupled with extreme revenue limitations imposed by the State of Wisconsin. These cost constraints make even maintaining new services difficult, let alone adding new programs and investments; however, the City of Milwaukee still spends over $1.5 billion annually. The budget is a document of priorities and service delivery. It is reviewed annually with an eye toward efficiency, equity, positive outcomes for the community, and financial sustainability. Using a whole-of-government approach, the annual budgeting process should incorporate review procedures to ensure departmental budget requests are in alignment with the *Climate and Equity Plan*, or at least don't run counter to it.

New Federal Resources

2022 was a momentous year for climate investment. President Joe Biden signed into law both the Infrastructure Investment and Jobs Act (IIJA) and the Inflation Reduction Act (IRA). The IIJA provides major new funding for traditional infrastructure but also new funding for electric vehicle charging and other climate improvements. The IRA provides billions in funding for climate improvement, including tax credits for renewable energy, home electrification, and a host of other opportunities.

Inflation Reduction Act Background

The following summary was graciously provided by the Cities Climate Law Initiative, Sabin Center for Climate Change Law at Columbia Law School.

The Climate, Tax, and Health Bill (officially known as the Inflation Reduction Act) is the single largest investment in climate change in U.S. history. The bill includes $369 billion in climate and energy related funding with substantial opportunities in transportation, water and wastewater, electricity grid modernization, electric vehicle infrastructure, environmental conservation, and pollution remediation. Based on analyses by several energy modeling groups, the Inflation Reduction Act will reduce U.S. greenhouse gas emissions by at least 40% by the year 2030, significantly narrowing the gap between the United States's current path and its Paris Climate Agreement commitment.

The Bill prioritizes environmental justice and leveraging nature as a climate change solution. Over $60 billion in environmental justice priorities will help drive these investments into disadvantaged communities. The Inflation Reduction Act acknowledges that land is a profound ally in the fight against climate change. Implementing nature-based climate solutions in urban settings, supporting reforestation initiatives, boosting forest preservation, and incentivizing climate-smart farming practices will help to protect our natural environment, improve human health, and mitigate climate change impacts.

Highlights:

- More than $300 billion invested in energy and climate reform, the largest federal clean energy investment in U.S. history.
- $60 billion for growing renewable energy infrastructure in manufacturing, like solar panels and wind turbines.
- Over $60 billion to on-shore clean energy manufacturing in the U.S. across the full supply chain of clean energy and transportation technologies.
- Over $60 billion in environmental justice priorities to drive investments into disadvantaged communities.
- Tax credits for electric vehicles and residential energy efficiency.
- Affirmation of the central role of agricultural producers and forest landowners in our climate solutions by investing in climate-smart agriculture, forest restoration, and land conservation.
- Bill projected to lower greenhouse gas emissions by 40%, based on 2005 levels, by the end of the decade.

Inflation Reduction Act Breakdown:

- **Sec. 60114: Climate Pollution Reduction Grants.** Two appropriations to be administered by the EPA are open to municipalities for climate action planning and reduction of greenhouse gas pollution. The first is a $250 million appropriation to support the development of plans to reduce greenhouse gas pollution in support of later projects that implement such pollution reductions. At least one grant must be made in each state. The second appropriation is for $4.75 billion for grants to implement greenhouse gas pollution reductions. Many of the details remain to be determined by the EPA, but applications for funding will need to include "information

regarding the degree to which greenhouse gas air pollution is projected to be reduced in total and with respect to low-income and disadvantaged communities." States, Native American tribes, and air pollution control agencies are also eligible for funding. The funding for planning is set to remain available until September 30, 2031 and the funding for implementation projects is set to remain available until September 30, 2026.

- **Sec. 60201: Environmental and Climate Justice Block Grants.** This new block grant program will make $2.8 billion available for (1) "community-led air and other pollution monitoring, prevention, and remediation, and investments in low- and zero-emission and resilient technologies"; (2) mitigation of urban heat islands, extreme heat, wood heater emissions, and wildfires; (3) reducing indoor air pollution; (4) climate resilience and adaptation; and (5) "facilitating engagement of disadvantaged communities in State and Federal advisory groups, workshops, rule-makings, and other public processes." In addition to these direct funding amounts, a $200 million appropriation is made for technical assistance in connection with the foregoing. Local governments are among those eligible for grants, in partnership with community groups. The funding is set to remain available until September 30, 2026.

- **Sec. 60103: Greenhouse Gas Reduction Fund.** A new greenhouse gas reduction fund, administered by the EPA, will provide billions of dollars in direct and indirect investment in projects to reduce greenhouse gas emissions at the local level. Municipalities are eligible for this funding, as are states, Tribal governments, and nonprofit entities that provide and leverage capital to finance projects to reduce greenhouse gas emissions (e.g., "green banks"). First, $7 billion is to be made available for grants, loans, and financial and technical assistance "to enable low-income and disadvantaged communities to deploy or benefit from zero-emission technologies," including rooftop solar, and other greenhouse gas reduction activities. Second, $11.97 billion is made available for grants to provide direct and indirect investment in projects, activities, or technologies that (1) reduce or avoid greenhouse gas and other air pollution by leveraging investment from the private sector or (2) "assist[s] communities in the efforts of those communities to reduce or avoid greenhouse gas" and other air pollution. And third, $8 billion is made available for the same activities specifically in low-income and disadvantaged communities. All amounts are to be made available within 180 days and remain available until September 30, 2024. Many details of how the green banks will function and be funded are yet to be determined.

Infrastructure Investment and Jobs Act Breakdown:

- **Sec. 40522: Energy Efficiency and Conservation Block Grants.** This block grant program will fund "programs financing energy efficiency, renewable energy, and zero-emission transportation (and associated infrastructure), capital improvements, projects, and programs," including "loan programs and performance contracting programs, for leveraging of additional public and private sector funds." $550 million is made available nationally for FY 2022 of which Milwaukee is expected to receive $522,370.

- **Sec. 40109: State Energy Program.** This provision allocates $500 million nationally in additional funding over five years to the State Energy Program, which "provides funding and technical assistance to states, territories, and the District of Columbia to enhance energy security, advance state-led energy initiatives, and increase energy affordability." This could be used for projects relating to building or transportation energy efficiency. The State is the entity eligible to apply for funding.

Funding the 10 Big Ideas

Funding summary prepared by Amy Turner of the Sabin Center for Climate Change Law at Columbia University.

The City of Milwaukee is eligible for significant federal funding for the implementation of the *Climate and Equity Plan*. The recent Inflation Reduction Act (IRA), which became law in August 2022, offers $5 billion in grants for climate action planning and for projects to reduce greenhouse gas pollution. The City is directly eligible to apply for this funding.

The IRA sets aside another $3 billion for environmental and climate justice "block grants," a new program through which the City, in collaboration with its many community partners, may apply for funding for projects as varied as pollution monitoring and prevention, reducing indoor air pollution, mitigation of urban heat, and climate resilience and adaptation efforts. A new "green bank" is also being set up to provide significant funding and to leverage private capital to reduce climate pollution.

The Infrastructure Investment and Jobs Act (IIJA) of 2021 also provides funding opportunities for this Plan. In particular, an energy efficiency and conservation block grant program will provide funding for energy efficiency, renewable energy, and low emissions transportation projects. The IIJA also funds Wisconsin's state energy program, which provides assistance with efforts aimed at energy efficiency and affordability, including many of the programs in this Plan.

#1: Green Jobs Accelerator

Carrying out the Climate and Equity Plan will create a wide array of new jobs for Milwaukeeans, who will lead the way in decarbonizing the city. The IRA and the IIJA will fund training and workforce development programs to help grow this new sector of the city's economy. Grant funding is available in both laws to train and educate contractors on energy efficiency and building electrification projects, as well as to conduct energy audits of local buildings. Additional funds are available to train workers in the transportation sector, including for the maintenance and operation of electric vehicles and chargers and for construction of surface transportation projects. Local community groups, along with the City, are also eligible to apply for funding for career skills training programs.

#2: Healthy Home Energy Upgrades

New incentives, to the tune of thousands of dollars per household, are now or soon will be available to help Milwaukeeans upgrade their homes. Two new rebate programs, the Home Owner Managing Energy Savings (HOMES) and the High-Efficiency Electric Home Rebate Act (HEEHRA) programs will be administered by the State of Wisconsin and will offer up to $8,000 per household for energy efficiency improvements and an additional thousands of dollars in rebates for the purchase of high-performance heat pumps and other electric home appliances. An additional tax credit will offer up to $1,200 per year for home improvements including energy audits, new heating appliances, and new windows and doors. The IIJA also expands the existing Weatherization Assistance Program and the Home Energy Assistance Program for low-income households, which provide funding for energy efficiency improvements and rising energy costs. For residential landlords, a separate grant program will also fund building energy audits and upgrades.

#3: New Net-Zero Energy Homes

A new tax credits offers up to $5,000 per new or renovated residential unit for homes built to the federal Energy Star or zero-energy ready standards. This credit will help both individual homeowners and housing developers with the cost to upgrade home energy and emissions performance. Both the IRA and IIJA also offer significant funding to the State of Wisconsin to adopt the most up-to-date building energy codes, ensuring that new homes are constructed with the best possible energy performance and thermal comfort. The City can work with the State to advocate for the adoption of these high-performance building energy codes.

#4: Commercial Energy Benchmarking & Building Performance Standards

New federal programs offer grants for energy efficiency and renewable energy improvements at schools and for non-profit community organizations in Milwaukee. Additionally, funding is offered to the State of Wisconsin to provide loans for commercial and residential energy audits and building upgrades. A new tax deduction, valued at between $2.50 and

$5.00 per square foot, will also help commercial building owners reduce greenhouse gas emissions. The City of Milwaukee can also take advantage of this tax incentive to reduce emissions from municipal buildings.

#5: People Centered Transportation & Urban Design

A number of new federal programs are available to fund upgrades to Milwaukee's neighborhoods and active transportation infrastructure. A Federal Highway Administration Program can be used for "complete streets" and other bicycling and pedestrian infrastructure projects, as well as to connect communities to transit and essential destinations and to remove or mitigate the impacts of high-traffic freeways. Additional Department of Transportation funding can also support these active transportation and access-to-transit projects. Other funding allocations, available to the City of Milwaukee or its state and regional partners, include those for transit, micro mobility, congestion mitigation, restoring community connectivity, improving transportation sustainability and reducing pollution, Vision Zero, and safe routes for children to walk and bike to school. Additionally, new funding is available to help the City navigate federal requirements that can otherwise present barriers to people-centered transportation projects.

#6: Electrify Transportation

Significant new incentives will be available for electric vehicles. For individual Milwaukeeans, a new tax credit offers up to $7,500 for the purchase of a new electric vehicle and $4,000 for a used electric vehicle, subject to eligibility limitations. Commercial vehicle owners will also be able to take advantage of tax credits of up to $7,500 for light- and medium-duty vehicles and up to $40,000 for heavy-duty vehicles. The City of Milwaukee may upgrade its vehicle fleet both through the monetization of this tax credit and through a grant program to cover the costs of heavy-duty vehicles like buses and associated charging equipment. Other grant programs are available to the City or its state partners to fund transportation electrification and EV charging, low- and no-emissions buses and school buses, and for electrification at ports. Together, these tax incentives and grant programs can dramatically increase EV affordability and make EV charging convenient and reliable.

#7: Greening the Electric Grid

Major changes to the tax code will help catalyze the development of clean, renewable energy resources like wind and solar power. For individual Milwaukeeans, a residential clean energy tax credit will offer up to 30 percent of the cost of residential rooftop solar and geothermal heating projects. Renewable energy developers will also be able to take advantage of expanded tax credits for investments in and production of these clean energy sources. The City of Milwaukee, too, will have access to many of these tax benefits in a way it never has before through a change allowing the City to receive tax credit amounts as direct payments. This will significantly augment the City's ability to invest in solar arrays, energy storage, and other renewable energy development. In addition to these tax incentives, new grant programs can fund grid resiliency projects, renewable energy at schools, and community-led renewable energy projects.

#8: Protect & Restore Nature in the City

New grant programs set aside funding for the planting and removal of impermeable pavements, as well as for Great Lakes resiliency projects including those to restore and protect marine habitats. All of these actions can help prepare Milwaukee for a changing climate and increasingly intense storms, as well as to make neighborhoods across Milwaukee more pleasant places to live and work.

#9: Waste Reduction & Sustainable Consumption

N/A

#10: Resilience Ambassadors

The City will depend on resilience ambassadors from all areas of Milwaukee to carry out the Climate and Equity Plan. Specific funding is available through the IRA's Environmental and Climate Justice Block Grant Program, which allow the City to partner with local community organizations to apply for funding for a broad array of projects, including to engage community members in advisory groups, workshops, and other public processes.

Chapter 10

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Group photo of Task Force.

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Task Force Co-Chair

**Taskforce Member & Working Group Chair*

- Supreme Moore Omokunde, Milwaukee County/ Wisconsin Assembly
- Nik Kovac, Milwaukee Common Council
- Jonathan Brostoff, Milwaukee Common Council
- Marcelia Nicholson, Milwaukee County
- Priscilla Coggs-Jones, Milwaukee County

Task Force Member

- Ted Kraig,* Wisconsin Climate Table
- Erick Shambarger,* City of Milwaukee Environmental Collaboration Office
- Frieda Webb, NAACP
- Janet Meissner Pritchard,* Citizen
- Julie Kerksick,* Community Advocates Public Policy Institute
- Linda Frank,* Sierra Club
- Pam Fendt, Milwaukee Area Labor Council
- Pamela Ritger de la Rosa,* Clean Wisconsin/ECO
- Rafael Smith,* Citizen Action of Wisconsin

Working Group Chair

- George Martin, 350 Milwaukee
- Jennifer Evans, JA Evans Consulting
- Bruce Wiggins, Community Member

Working Group Member

- Jed Winkler, Advocate Aurora Health
- Akira Mabon, Aging and Disability Resource Center
- Christopher Piszczek, Alliance for Climate Education
- James Jedebudiah, AmeriCorps
- Andrew Holmstrom, Arch Electric
- Victor Nino, ASHRAE, Wisconsin Chapter
- Richard Diaz, BlueGreen Alliance
- Robert Kraig, Citizens Action of Wisconsin
- Kevin Muhs, City of Milwaukee (City Engineer)
- Sam Leichtling, City of Milwaukee Department of City Development
- Tanya Fonseca, City of Milwaukee Department of City Development
- Michael Olen, City of Milwaukee Department of Neighborhood Services
- Marissa Meyer, City of Milwaukee Department of Public Works
- Samantha Longshore, City of Milwaukee Department of Public Works
- Scott Baran, City of Milwaukee Department of Public Works
- Dynasty Ceasar, City of Milwaukee Environmental Collaboration Office
- Erin Keleske, City of Milwaukee Environmental Collaboration Office
- Elizabeth Hittman, City of Milwaukee Environmental Collaboration Office

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- Jacob Jansen, City of Milwaukee Environmental Collaboration Office
- Matt Donath, City of Milwaukee Environmental Collaboration Office
- Glen Radford, City of Milwaukee Housing Authority
- Warren Jones, City of Milwaukee Housing Authority
- Maithilee Kanthi, Clean Wisconsin
- Celia Jackson, Coalition for Safe Driving
- David Weingrod, Community member
- Dennis Grzezinski, Community Member
- Dulmini Jayawardana, Community Member
- Jess Haven, Community Member
- Lawrence Hoffman, Community Member
- Tracy Staedter, Community member
- Melissa Tashjian, Compost Crusader
- Jeff Stone, Conservative Energy Forum / Kapur Consulting Engineers
- Julie Cayo, Employ Milwaukee
- Kathleen Ellis, Entegris
- James Davies, Grassroots South Shore, Bublr Bikes
- Bridget Brown, Great Lakes and St. Lawrence Cities Initiative
- Kevin Kane, Green Homeowners United
- Dan Kalkman, HGA Architects and Engineers
- Mandi McAlister, Hummingbird, LLC
- Ken Blaeske, IBEW Local 494
- Jill McClellan, Intertek
- Renee Clair, Johnson Controls International
- Amanda Schienebeck, Midwest Renewable Energy Association
- Rebecca Gries, Milwaukee 7 (M7)
- Ginny Routhe, Milwaukee Area Technical College
- Kimya Green, Milwaukee Area Technical College
- Ted Wiliniski, Milwaukee Area Technical College
- Gordie Bennett, Milwaukee County Office of Sustainability
- Mitch Harris, Milwaukee County Transit System
- Michael Anderson, Milwaukee Public Schools, Wisconsin Bike Federation
- Cheryl Nenn, Milwaukee Riverkeeper
- Kurt Bauhmann, Outpost Natural Foods
- Rock Ridolfi, Rivion
- Barbara Richards, Sierra Club
- Jermaine Alexander, Sherman Park Community Association
- Mabel Lamb, Sherman Park Community Association
- Jamie Ferschinger, Sixteenth Street Community Health Centers
- Kelly Moore Brands, Sixteenth Street Community Health Centers
- Robin Lisowski, Slipstream
- Celaneese Landon, Social Development Commission
- Ben McKay, Southeast Wisconsin Regional Planning Commission (SEWRPC)
- Laura Herrick, Southeast Wisconsin Regional Planning Commission (SEWRPC)
- Dan Ebert, The Ebert Group
- Lamont Smith, The Nature Conservancy
- Yvonne McCaskill, Century City Triangle Neighborhood Association
- John Willis Gardner, University of Wisconsin-Milwaukee
- Joseph Peletis, University of Wisconsin-Milwaukee
- Mark Keane, University of Wisconsin-Milwaukee
- Urbain Boudjou, University of Wisconsin-Stevens Point
- Korinne Haeffel, U.S. Green Building Alliance
- Meg McKenna, Visit Milwaukee
- Anne White, Wangard Partners
- Katherine Riebe, Wauwatosa Sustainability Committee
- Rob Zimmerman, Wauwatosa Sustainability Committee
- Seth Flanders, Wauwatosa Sustainability Committee
- Megan Severson, Wisconsin Environment/ NRG Consulting
- Susanna Cain, Wisconsin Public Interest Research Group (WISPIRG)
- Cara Walls, Workshop Architects

Technical Consultant

- Shilpa Sankaran, Alpha Group
- John Carter, ERG
- Sarah Walwema, GRAEF-USA
- Alex Halverson, GRAEF-USA
- Brianna Fiorillo, GRAEF-USA
- Stephanie Hacker, GRAEF-USA
- Cameron Wein, GRAEF-USA
- Eli Yewdall, ICLEI USA
- Tom Herrod, ICLEI USA
- Tara Brown, Institute for Market Transformation
- Shawn Enterline, Regulatory Assistance Project
- Michael Rivera, Rivera & Associates, Inc
- Amy Turner, Sabin Center for Climate Change Law, Columbia University
- Steve White, Steve White Films
- Keisha Roper, Steve White Films

Plan Produciton, Layout and Design

- Alexis Laverdiere, City of Milwaukee Environmental Collaboration Office
- Christina Klose, City of Milwaukee Department of Administration

END NOTES

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Tree canopy. Photo Credit: John December

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