



Executive Summary



The Dane County Office of Energy & Climate Change initiated work on this climate action plan in 2017, working with representatives from 38 organizations and another 75 individuals from across the county to help research and develop the top program, policy, and project recommendations that will enable Dane County to sharply reduce greenhouse gas emissions (GHG) and put Dane County on a path to deep decarbonization.

Major findings

1. Southern Wisconsin will continue to get hotter and wetter. The number of days each summer that the high temperature is above 90 °F is historically 10 to 15 days a year. In 2050 that range will be 30 to 40 days each summer.
2. The Intergovernmental Panel on Climate Change (IPCC), says that to keep global warming to 1.5 °C, we need to reduce GHG emissions by 45% by 2030. Modeling shows that by implementing the policies, programs, and projects in this Climate Action Plan we will reduce Dane County-wide fossil-fuel GHG emissions by up to 50% by 2030 and put Dane County on a path to deep decarbonization.
3. The modeling done as part of this plan shows that the recommendations will leave us far short of the goal the plan establishes to make Dane County carbon-neutral by 2050, and new solutions will be required in areas such as replacing natural gas as a heating fuel.
4. This plan gives Dane County a goal to meet one-third of its electricity use with solar power (1200 MW) and one-half with wind power (700 MW) by 2030.
5. Dane County, as a whole, needs to transition away from petroleum-based vehicles to electric vehicles (EVs) and renewable natural gas (RNG) vehicles as quickly as possible. Dane County government is a national leader in the transition to RNG.
6. All of Dane County needs to drastically increase its investment in energy efficiency, energy conservation, and other demand-side emission reduction strategies.
7. By reducing our GHG emissions by more than 45% by 2030 we can give a major boost to economic development in Dane County, a major boost to equity, and a major boost to public health.

8. To reach the necessary GHG emission levels in Dane County and globally, we need more sustainable agriculture systems, and Dane County can be a leader in that transition.

This report is about the geographic place we call Dane County. More specifically, it is about how coming together as the community of Dane County to address climate change can preserve and enhance the quality of life here in many ways, especially for future generations. Any time we come together to consider topics of great consequence to the geographic place we stand, it is important to recognize the people who lived here first; the people who lived here in harmony with nature and the land, in this case, the Ho-Chunk Nation. It is our hope that we can learn from their teachings.

We cannot talk about the impacts of climate change and the strategies to mitigate them without talking about climate justice. Climate change, like so many other environmental disasters, disproportionately affects low-income citizens, communities of color, and other vulnerable populations such as the youngest

▼ Food waste is a major contributor to greenhouse gas emissions. Locally grown organic food tends to be healthier and to reduce greenhouse gas emissions by decreasing transportation distances. *Photo: Center for Resilient Cities 2019*



and oldest among us. Invariably climate change has the largest impact on the individuals who have the smallest carbon footprints, and we considered that as we constructed this plan.

We used these six guiding principles to develop the climate action recommendations:

- 1. Equity/Justice** The climate solutions must be available to all Dane County citizens, regardless of race, income levels, or any other differences. The CAP must put the most vulnerable people in our communities first.
- 2. Economic Benefits** We will pursue climate solutions in the most cost-effective way possible and in ways that maximize the considerable local economic benefits.
- 3. Health Benefits** We will also implement these climate mitigation strategies in ways that maximize the considerable health benefits that will accrue from reducing GHG emissions.
- 4. Resiliency/Security** We will design and implement climate solutions in ways that build the resiliency of our communities, provide critical infrastructure, and give vulnerable communities increased energy security.
- 5. Bridging the Urban and Rural Divide** The CAP will recognize the critical role that the rural areas play in Dane County's economy and quality of life and the enormous role rural areas can play in climate solutions.
- 6. Ecosystem Benefits** Nature provides critical food, water quality, medicine, fiber, and construction material resources to our society. Nature also provides critical cognitive developmental, educational, inspirational, and spiritual benefits. We need to design and implement our climate solutions in ways that protect, preserve, and increase the ecosystem's ability to provide these benefits to Dane County citizens.

This CAP presents more than 100 different climate actions we can take to reduce greenhouse gas emissions. These actions were modeled by Sustainable Energy Economics and the modeling tells us that the actions proposed here can achieve up to a 50% reduction of greenhouse gas emissions by 2030 and a 68% reduction by 2050. The specific actions fall under nine main recommendation categories.

Recommendation Categories

- 1. Energy Efficiency** Dane County will develop, commission, and execute a county-wide energy efficiency program that will reduce GHG emissions by increasing the efficiency of energy and transportation systems for homeowners, renters, and businesses. The Dane County energy efficiency program will prioritize the most vulnerable communities and neighborhoods.
- 2. Buildings** The Office of Energy & Climate Change will support the creation of advanced, voluntary building guidelines to help developers build highly energy efficient, and eventually net-zero energy and net-zero carbon buildings.
- 3. Transportation** Dane County will work with municipalities, utilities, and other stakeholders to implement up to a dozen programs designed to encourage and incentivize the purchase of EVs. We will continue to expand our nation-leading RNG efforts to transition Dane County diesel vehicle fleets to RNG. And Dane County will pursue multiple strategies to reduce driving including smart growth, urban villages, active transportation, regional transit, and other strategies to reduce vehicle miles traveled. We will prioritize these transportation solutions for communities of color, low-income neighborhoods, and otherwise vulnerable citizens.
- 4. Renewable Energy** The Office of Energy & Climate Change will accelerate solar and wind energy development to meet one-third of Dane County's electricity use with solar and one-half with wind power by 2030. We will accelerate energy storage development at Dane County facilities and will help to identify finance tools for storage projects at municipal government facilities as well as private businesses. We will also launch a comprehensive solar education program aimed at businesses, make incentives available for solar on affordable housing, and work with municipalities to help them reach their renewable energy and GHG emission goals.
- 5. Agriculture and Forestry** Dane County will pursue a variety of advanced agriculture systems and practices that sequester more carbon including alley cropping, silvopasture, perennial cropping, and riparian buffers. We will also accelerate development of biodigesters, composting, and other manure management strategies. We will use a combination of existing tree and canopy inventories to establish a tree canopy baseline and then implement several reforestation and afforestation strategies, and help private landowners manage existing forests for greater carbon sequestration.



- ▲ Compressed renewable natural gas (RNG) from the Dane County landfill is sold in Kwik Trip gas stations across the state. RNG achieves an 88% reduction in carbon pollution compared to diesel vehicles.

- 6. Water** The Office of Energy & Climate Change will support the efforts of the Madison Water Utility to develop and implement a residential water efficiency and rainwater incentive program and work with all the municipalities to build off Madison's successes. We will also build a water efficiency focus into the energy efficiency program developed per the first recommendation (Energy Efficiency).
- 7. Waste Materials to Resources** Dane County will continue the transition from traditional waste programs to resource management systems in a circular economy. Dane County will create new programs to divert additional waste materials from landfilling, in ways that are economically and environmentally sustainable, thus reducing methane emissions from landfill operations and other GHG emissions from the use of more virgin materials. Dane County will continue to expand our nation-leading renewable natural gas (RNG) efforts to convert landfill gas to renewable vehicle fuel, with future efforts aimed at capturing the carbon component of the remaining landfill emissions.

- 8. Finance Solutions** The Office of Energy & Climate Change will work with existing finance programs, such as the Property Assessed Clean Energy (PACE) program and performance contracting, to help finance clean energy projects for businesses, governments, and other organizations. The Office of Energy & Climate Change will also explore tools such as loans with credit enhancements, climate bonds, and green banks, and work with key stakeholders to create a voluntary carbon market.

- 9. Cross-sector Solutions** The Office of Energy & Climate Change will develop and award Dane County Clean Energy District designations to neighborhoods and communities that develop broad-based clean energy programs for their citizens and businesses and create plans to target clean energy benefits to those most vulnerable within their community. The Office of Energy & Climate Change will also work to establish a research and development fund to support research directly related to climate mitigation and adaptation.

▼ Modeling analysis tells us that large precipitation events that cause floods will become increasingly frequent in the future if we don't achieve deep reductions in carbon pollution emissions. Here rescue workers get a family safely out of their home in Mazomanie during severe flooding in August 2018. *Photo: Mitchell Travis*



The 1,000-year flooding that occurred in Madison and western Dane County in August 2018, causing loss of life and more than a hundred million dollars of property damage, was surely just a taste of the costly effects of climate change to come. You, your family, your neighbors, and your co-workers, can have a significant influence on the degree of future climate impacts. And the good news is that taking the actions described in the following pages will not only reduce climate change, but holds the potential to promote equity and justice, boost our economy, and protect public health and welfare.

By combining our efforts with the research and practices other communities, counties, and countries around the world are implementing, Dane County can reach up to a 50% reduction of greenhouse gas emissions by 2030. To reach the lofty goal of 100% reduction by 2050 will require continued research and innovation, and we are committed to filling those roles.

This is a high-level climate action plan that lays out some broad goals, some specific goals, and some broad recommendations for how to reach those goals. The next phase of the Office of Energy & Climate Change climate mitigation work will include a lot of community listening and community outreach to further develop the details of program design and implementation plans for the recommendations included here (see the Public Engagement section). Following those efforts, we will begin implementing these programs, projects, and policies (see the Moving Forward section). This CAP embodies many great thoughts and ideas from this particular time, but as we learn more, as technologies and markets advance, and as organizations, businesses, and individuals innovate, this plan will need to be revised and updated to ensure that we meet our longer-term GHG emission goals, and stay on the pathway to deep-decarbonization. We sincerely hope that you will join us on that pathway, because it will take all of us working together to achieve our climate goals and create a safer, healthier, more equitable and prosperous future for all citizens of Dane County.