

SUSTAINABILITY & RESILIENCE STAFF REPORT

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PROPOSAL: BUILDING ENERGY SAVINGS CODE

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Introduction

The City of Madison is committed to reaching 100% renewable energy and net-zero carbon emissions by 2030 for city operations and community-wide by 2050. According to a 2015 greenhouse gas inventory, commercial buildings were responsible for 30% of community-wide greenhouse gas emissions. Improving energy efficiency in commercial buildings is proven strategy for saving energy and reducing their carbon footprint. More than 40 other cities, counties, and states have established policies focused on improving energy efficiency in existing buildings. Visit the [Building Performance Policy Center](#) for additional information and a [map](#) summarizing adoption of these policies across the U.S.

Purpose

This purpose of the Building Energy Savings code is to improve energy efficiency and reduce greenhouse gas emissions in commercial buildings community-wide through energy benchmarking and tune-ups.

Energy benchmarking is simply measuring and tracking annual energy use. Importantly, benchmarking does NOT require a building to meet a prescribed level of energy use. Rather, the information that benchmarking provides helps building owners and managers make more informed decisions about building operations and actions to save energy and money. [Research by U.S. EPA](#) shows that buildings that benchmark their energy use see an average annual energy savings of 2.4% per year that accrues over time, resulting in an 8 to 10% total reduction in annual energy use over time.

Similar to tuning up a car, building tune-ups check and adjust building energy systems, like lighting and HVAC controls, once every four years to make sure existing systems are performing at their best without wasting energy. For a tune-up, a qualified professional, which could be current building staff, assesses a building's existing energy systems, controls, and maintenance practices and performs no- to low- cost operational adjustments, maintenance, or minor repairs that improve system performance and save energy. Importantly, tune-ups are NOT focused on major upgrades to buildings or building equipment. Rather, tune-ups aim to ensure the existing equipment is running as intended. Tune-ups catch un-noticed issues that can waste a lot of energy. [Meta-analysis by Pacific Northwest National Laboratory \(PNNL\)](#) found that tune-ups result in a median annual energy savings of 12%.

Benchmarking and tune ups save energy, reduce utility bills, provide a more comfortable space for occupants, and reduce carbon and air pollution that negatively impacts public health and safety. Reducing annual energy use in buildings covered under this ordinance by 10 to 15% would cut carbon emissions by an estimated 91,257 to 136,886 tons of CO₂e a year. That's the equivalent of taking 17,838 to 26,757 cars off the road.

Requirements and Implementation

Benchmarking: All non-residential, commercial buildings 25,000 square feet and larger will be required to benchmark annual energy use via ENERGY STAR Portfolio Manager, a free online tool provide by the U.S. EPA, and provide a benchmarking report to the City.

Tune-ups: All non-residential, commercial buildings 50,000 square feet and larger will also be required to conduct a building tune-up every four years and provide a tune-up report to the City.

Tune-up Alternative Pathways: In our community, many building owners and managers are already investing in energy efficiency for their buildings. To allow flexibility, the Building Energy Savings code allows building owners to choose to conduct a tune-up OR to provide documentation that demonstrates they have a highly efficient building or have recently taken actions that substantially improved their building's efficiency. See the attached FAQ or Section (4)(3)(c) of the ordinance for a list of pathways.

In mixed-use buildings, only the non-residential portion of a building counts toward the size threshold and is covered by the requirements.

This ordinance will be part of the property maintenance code and be administered by the Sustainability and Resilience Manager in the Mayor's Office, with enforcement actions to be undertaken by the Building Inspection Division. Compliance dates phased in over a series of years, with the largest buildings first benchmarking in 2024 and the largest buildings first tuning-up in 2025.

Accompanying Building Energy Savings Program

Implementation of this ordinance will be supported by the Building Energy Savings Program which has been designed to provide the training, support, and information that building owners need to benchmark and tune up as well as take the next steps to turn building efficiency knowledge into action.

The City will provide free trainings on the elements of the program and a Help Desk to ensure building owners and managers have the information they need to easily and successfully benchmark and tune-up their buildings.

The City will provide building owners with customized reports that include a summary of whole-building energy use and how it is changing over time, information on how their building compares to others in Madison, customized recommendations for saving energy and the benefits those changes could bring, and information on resources building owners can leverage to improve energy performance such as rebates, incentives, and financing from across local, state, and federal sources.

Ordinance and Program Development

Development of the Building Energy Savings Program and this ordinance are informed by two years of outreach and engagement with the Madison community. Since January 2021, City staff have engaged

directly with more than 80 individuals from over 35 organizations, local governments, and federal programs, including building energy professionals and scientists, building owners and managers, facilities management professionals, real estate professionals, the business community, MG&E, Alliant Energy, Focus on Energy, public institutions, nonprofit organizations, and peer cities.

City staff attended multiple meetings with leading local organizations that represent commercial building owners and tenants, including Greater Madison Chamber of Commerce, Downtown Madison Inc, and Smart Growth Greater Madison. City staff also presented to the Sustainable Madison Committee on December 20, 2021 and June 27, 2022.

Staff also presented to and received feedback at meetings with relevant professional organizations including the Wisconsin chapters of the International Facilities Managers Association (IFMA), the International Building Performance Simulation Association (IBSPA), the American Institute of Architects (AIA), and the Wisconsin Association of Energy Engineers (WAEE).

The City held a Public Information Meeting on the program on July 13, 2022, which had 60 registrants and 48 attendees. The PIM was recorded and posted online, including Q and A. Following the PIM, staff held three workshops between July and August of 2022 to gather public input on specific aspects of the program's design, each with 40 to 48 attendees. Collaborations boards from each workshop with attendee feedback are available [online](#).

A Racial Equity and Social Justice Analysis of the program was completed by a nine member panel consisting of three City staff members and 6 community-members.

For More Information

The [Building Energy Savings Program FAQ](#) provides a comprehensive list of answers to questions commonly asked about the program and ordinance.

Visit the [Buildings Page on the Sustainability and Resilience website](#) for more information about the program and links to all relevant resources, including the draft ordinance, FAQ, recording of the PIM, and collaboration boards from the three workshops.