

# Building Energy Savings Program

---



JESSICA PRICE, PHD  
SUSTAINABILITY AND RESILIENCE MANAGER  
CITY OF MADISON

# Climate Action in Madison

---



Climate change is impacting our lives today.

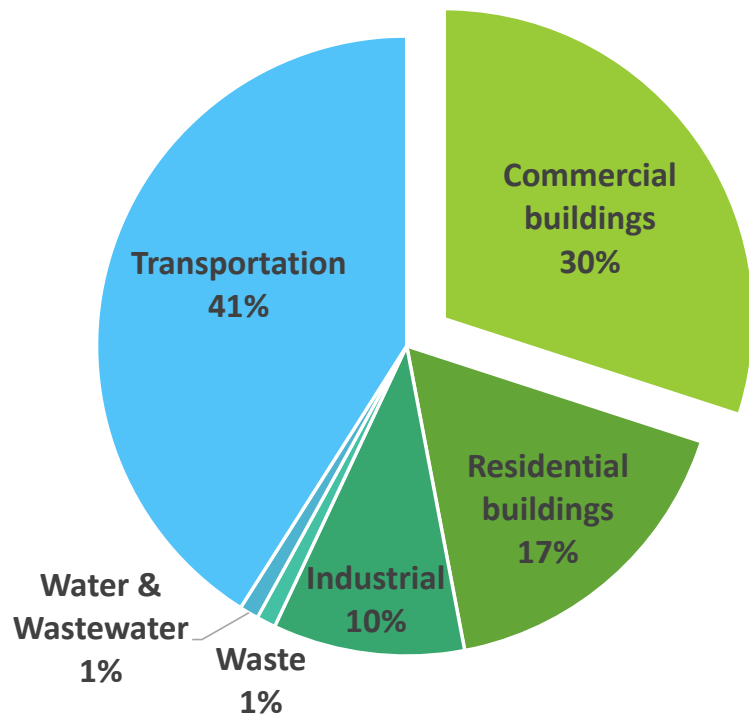
Heat waves, severe storms, and flooding are affecting our health, our infrastructure, and economy.

Madison is committed to doing our part to cut GHG emissions.

Now is the time for climate action.

# Madison's Climate & Energy Goals

---

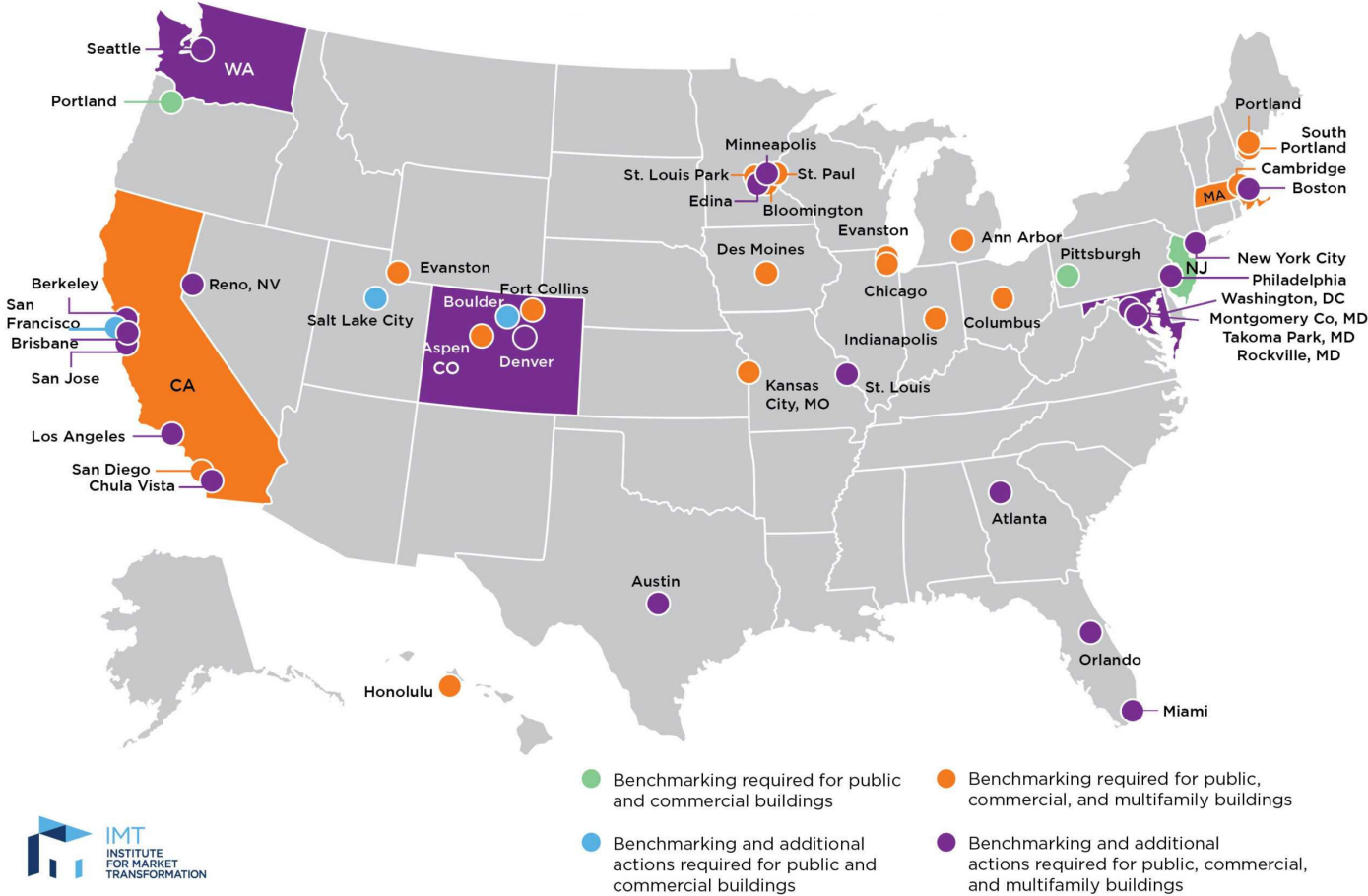


Our commitment: 100% renewable energy and net-zero carbon emissions for city operations by 2030 and community-wide by 2050.

30% of emissions are from commercial buildings

6.5% of Madison's commercial buildings are responsible for 48% of commercial energy use

# U.S. City, County, & State Policies for Energy Efficiency in Existing Buildings



© Copyright 2022 Institute for Market Transformation. Updated 08/2022.

# Program Development

---

- Since January 2021 - more than 80 individuals from over 35 organizations and local governments
- Public Information Meeting
- Three workshops to gather input on specific aspects of program design
- Many meetings and presentations to local and regional business and professional organizations
- RESJI Analysis completed by a nine member panel consisting of three City staff members and 6 community-members.



# Building Energy Savings Program

---

The proposed program requires large, non-residential commercial buildings to do two things:



## Annual Energy Benchmarking – Buildings 25,000 sq. ft. and larger

Measure and report building energy use once a year.



## Building Tune-ups every four years – Buildings 50,000 sq. ft. and larger

Check and adjust a building's existing systems, like lighting and HVAC, to make sure they are operating at their best.

This program does NOT apply to: 1) buildings less than 25,000 sq. ft., 2) residential buildings or residential portions of buildings, and buildings used for industrial or manufacturing purposes

# Why this approach?

---



## Big Benefits.

Reduces annual energy use 8-12% per building on average.

Cuts carbon pollution more than 91,000 tons per year community-wide.



## Provides flexibility.

Building owners can choose their path forward.



## Small cost.

Keeps existing equipment running well, no new systems required.

Saves money on utility bills, pays back quickly.



## Informed decision-making.

Enables building owners and the city to make data-drive choices.

# Annual energy benchmarking

---



Buildings +25,000 ft<sup>2</sup> would benchmark energy use once a year and submit a one-page summary report to the City.

Energy benchmarking is simply measuring and tracking annual energy use. It enables building owners and operators to:

- understand energy use patterns
- spot unexpected changes
- set energy goals and track progress
- identify opportunities to save energy and money




Energy savings of 2.4% per year, adding up to 8 to 10% overall.



# Annual energy benchmarking



- EPA's ENERGY STAR Portfolio Manager is a **free online tool**.
- Anyone can complete benchmarking – no special training needed.
- The only cost is a few hours of staff time each year.
- Only the one-page Statement of Energy Performance is shared with the City.
- There is **no fee** to submit the statement.



LEARN MORE AT [energystar.gov](http://energystar.gov)

## ENERGY STAR® Statement of Energy Performance

**77**  
ENERGY STAR® Score<sup>1</sup>

**Sample Property**  
Primary Property Function: Office  
Gross Floor Area (ft<sup>2</sup>): 50,419  
Built: 1951  
For Year Ending: December 31, 2021  
Date Generated: March 1, 2022

1. The ENERGY STAR score is a 1-100 assessment of a building's energy efficiency as compared with similar buildings nationwide, adjusting for climate and business activity.

Property & Contact Information		
<b>Property Address</b> Sample Property 123 Example St Madison, WI 53703	<b>Property Owner</b> Property Inc. 123 Early Bird St. Madison, WI 53703	<b>Primary Contact</b> Jane Doe 123 Early Bird St. Madison, WI 53703 555-123-4567 jane_doe@propertyinc.com

Property ID: 3681885

Energy Consumption and Energy Use Intensity (EUI)			
<b>Site EUI</b> 75.7 kBtu/ft <sup>2</sup>	<b>Annual Energy by Fuel</b>	<b>National Median Comparison</b>	
	Electric - Grid (kBtu) 2,453,824 (64%)	National Median Site EUI (kBtu/ft <sup>2</sup> )	103.5
	Natural Gas (kBtu) 1,273,766 (33%)	National Median Source EUI (kBtu/ft <sup>2</sup> )	247.6
	Propane (kBtu) 91,000 (2%)	% Diff from National Median Source EUI	-27%
<b>Source EUI</b> 181.2 kBtu/ft <sup>2</sup>		<b>Annual Emissions</b>	
		Greenhouse Gas Emissions (Metric Tons CO <sub>2</sub> e/year)	311

**Signature & Stamp of Verifying Professional**  
I, \_\_\_\_\_ (Name) verify that the above information is true and correct to the best of my knowledge.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Licensed Professional**

John Smith  
4 Pinet Dr  
Arlington, VA 22201  
703-111-1234  
john\_smith@energyinspectors.com

Professional Engineer Stamp  
(if applicable)

# Building Tune-ups

---



- Once every four years, buildings +50,000 ft<sup>2</sup> would tune-up OR choose an alternative compliance pathway that demonstrates they are on a path to energy efficiency.
- Building tune-ups check and adjust a building's *existing* systems that impact energy use to make sure they are operating as expected and aren't accidentally wasting energy.
- If needed, operational adjustments, maintenance, or minor repairs are made so the systems are in a good state of operation.
- Building facilities staff or a contracted service provider with the right experience and training can do this work.



Energy savings of 12%  
per year on average

# What's included in a tune-up?



A tune-up checks the settings, sensors, controls, and physical condition of these systems:

- Building envelope
- HVAC systems (heating, ventilation, and air conditioning)
- Conveying systems (i.e. elevators, escalators, and moving walkways)
- Domestic hot water systems
- Electrical lighting systems

A tune-up focuses on keeping existing equipment running well.

Tune-ups DO NOT require anyone to install new equipment or replace functional equipment.



# Tune-Up Benefits

---

**Tune-ups are a common-sense systems check that provides a quick payback.**

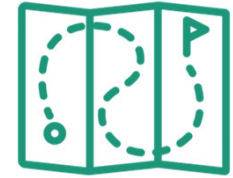
- Pacific Northwest National Labs has studied tune-ups across the country. Their 2020 meta-analysis found:
- Tune-ups result in a media annual energy savings of 12%, with some buildings saving as much as 52%.
- Annual median energy cost savings of \$0.16/ft<sup>2</sup>.
- Median simple payback of 1.7 years.

**A 4-year tune-up cycle enables tune-ups to be revenue neutral or positive.**



# Choose a Pathway

---



## 1. COMPLETE A BUILDING TUNE-UP

## 2. CHOOSE ALTERNATIVE COMPLIANCE PATHWAY

- Certified ENERGY STAR score of +75
- LEED Gold or Platinum for O+M
- Commissioning or retro-commissioning
- Net Zero Energy Certification
- +10% improvement in energy efficiency
- Complete energy audit & implement actions with fast payback
- Building has low energy use per square foot

- Received a Dane County Climate Champion award
- Received a Better Buildings Challenge Goal Achiever award
- Received BOMA 360 designation or TOBY award

## 3. APPLY FOR A DEADLINE EXTENSION

- Recent change in building ownership
- Vacancy rate of 50% or more
- Building is undergoing a major renovation
- A building's owner is experiencing financial hardship such as bankruptcy or foreclosure.

# Phased Program Start



Benchmarking Begins

2023

2024

2025

2026

2027

2028

**Large buildings**  
>100,000 ft<sup>2</sup>



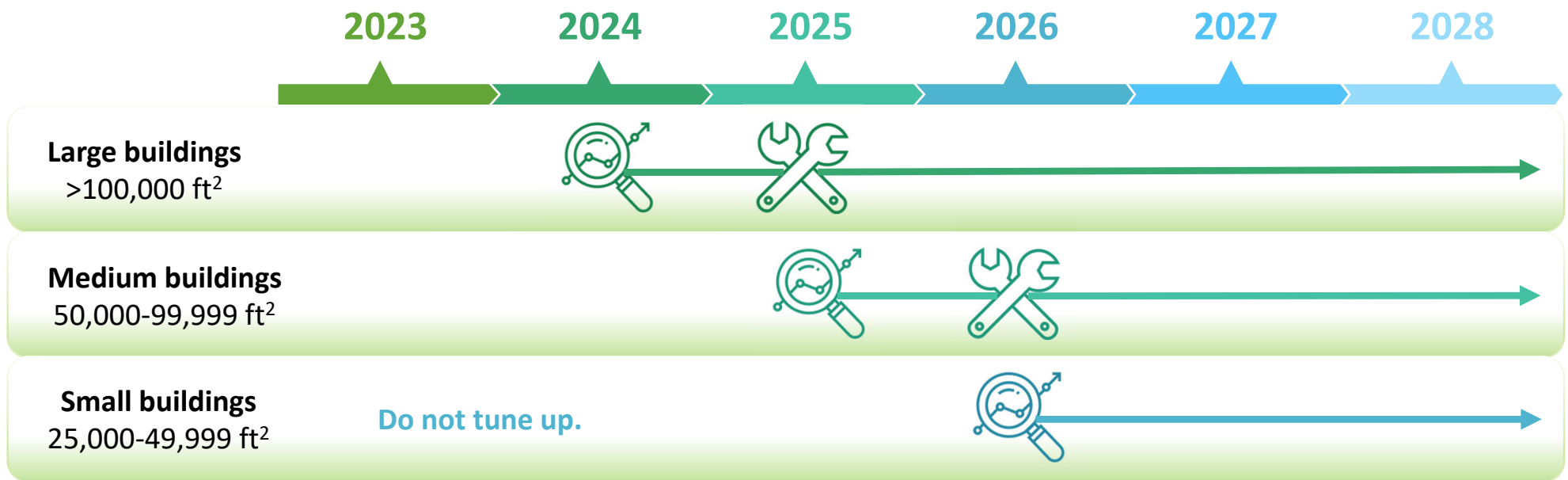
**Medium buildings**  
50,000-99,999 ft<sup>2</sup>



**Small buildings**  
25,000-49,999 ft<sup>2</sup>



# Phased Program Start



# Big Picture Benefits

---

- Madison is making good on our climate promise.
- Cut climate pollution as much as taking 18,000 to 27,000 cars off the road.
- Reduce fossil fuel energy generation, improve air quality, & protect public health
- Help business save money on their utility bills and improve their bottom line.
- Makes our community more attractive and competitive.



**Reduce  
Energy  
Use**



**Reduce  
Energy  
Bills**



**Reduce  
GHG  
Emissions**



# Thank you!

---



Jessica Price, PhD  
Sustainability and Resilience Manager  
City of Madison | Office of the Mayor

[jprice2@cityofmadison.com](mailto:jprice2@cityofmadison.com)  
608-267-1992

