Public Information Meeting

BUILDING ENERGY SAVINGS PROGRAM

CITY OF MADISON, SUSTAINABILITY AND RESILIENCE

JULY 13 @ 1P

THANK YOU FOR ATTENDING. WE WILL BEGIN SHORTLY…

Meeting Technical Housekeeping

- This meeting will be recorded.
- All attendees should be muted to keep background noise to a minimum.
- Use the “chat” button for technical issues with meeting to troubleshoot with staff to assist.
- Use the “Q and A” button to type questions about presentation. Questions will be answered live after the presentation.
- Inappropriate questions may be dismissed.
- Use the “raise your hand” button to verbally ask your question. You will be prompted to unmute when it is your turn.

This meeting is being recorded.

It is a public record subject to disclosure.

By continuing to be in the meeting, you are consenting to being recorded and consenting to this record being released to public record requestors.

Building Energy Savings Program

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CITY OF MADISON

Agenda

- Program Introduction & Aims
- Efficiency at Work in Madison
- Proposed Program Elements
- Next Steps
- Q&A
- Closing

Climate Action in Madison

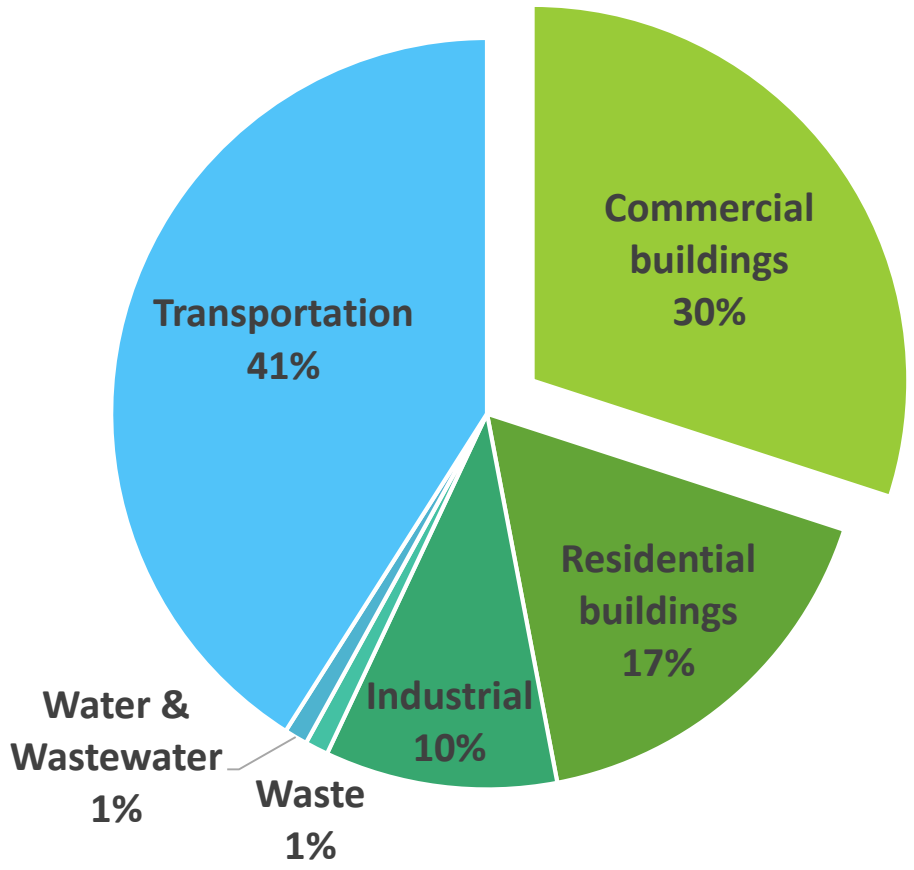
Climate change is impacting our lives today.

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.

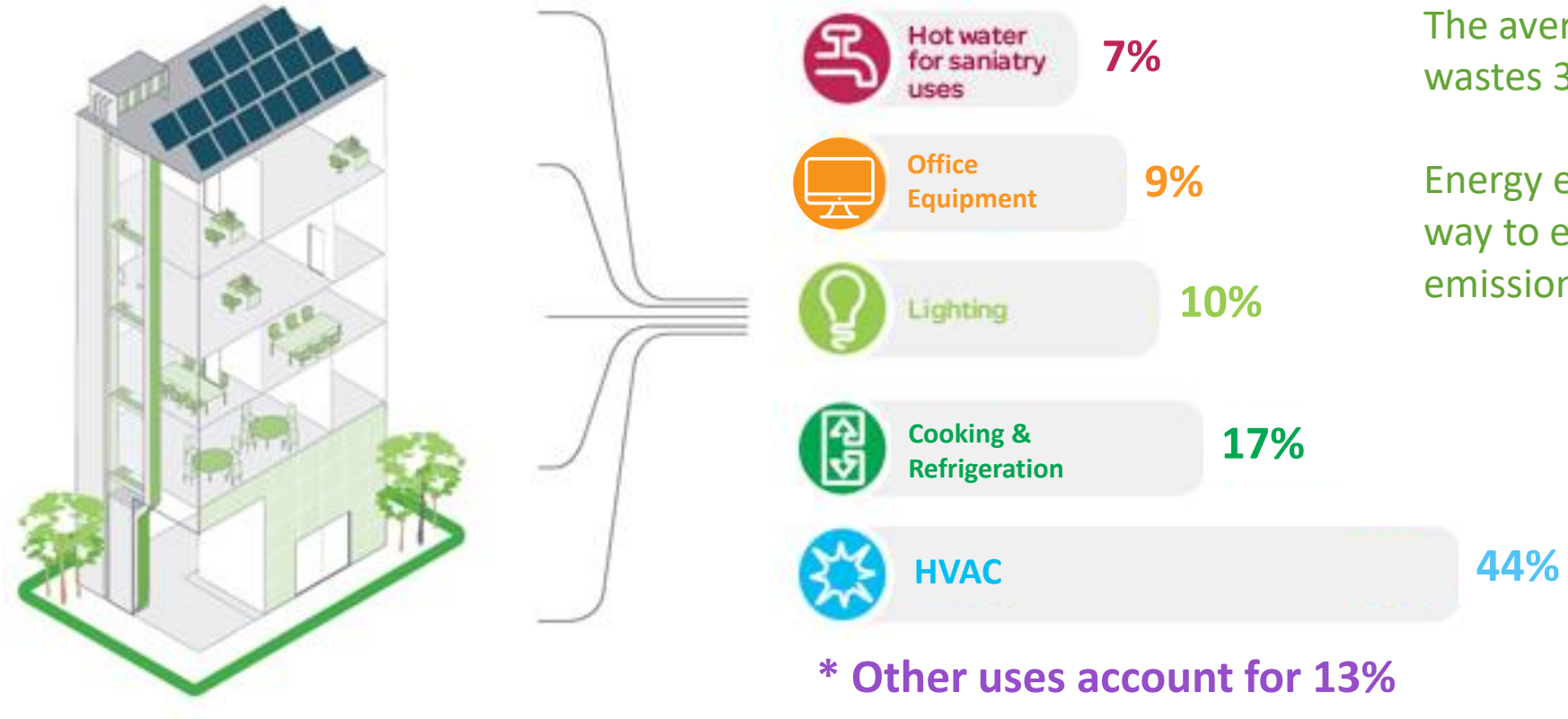
Madison's Climate & Energy Goals



- 2030 - 100% renewable energy for city operations by 2030
- 2050 - 100% renewable energy & net-zero carbon emissions community-wide

30% of emissions are from commercial buildings

Commercial Building Emissions & Energy

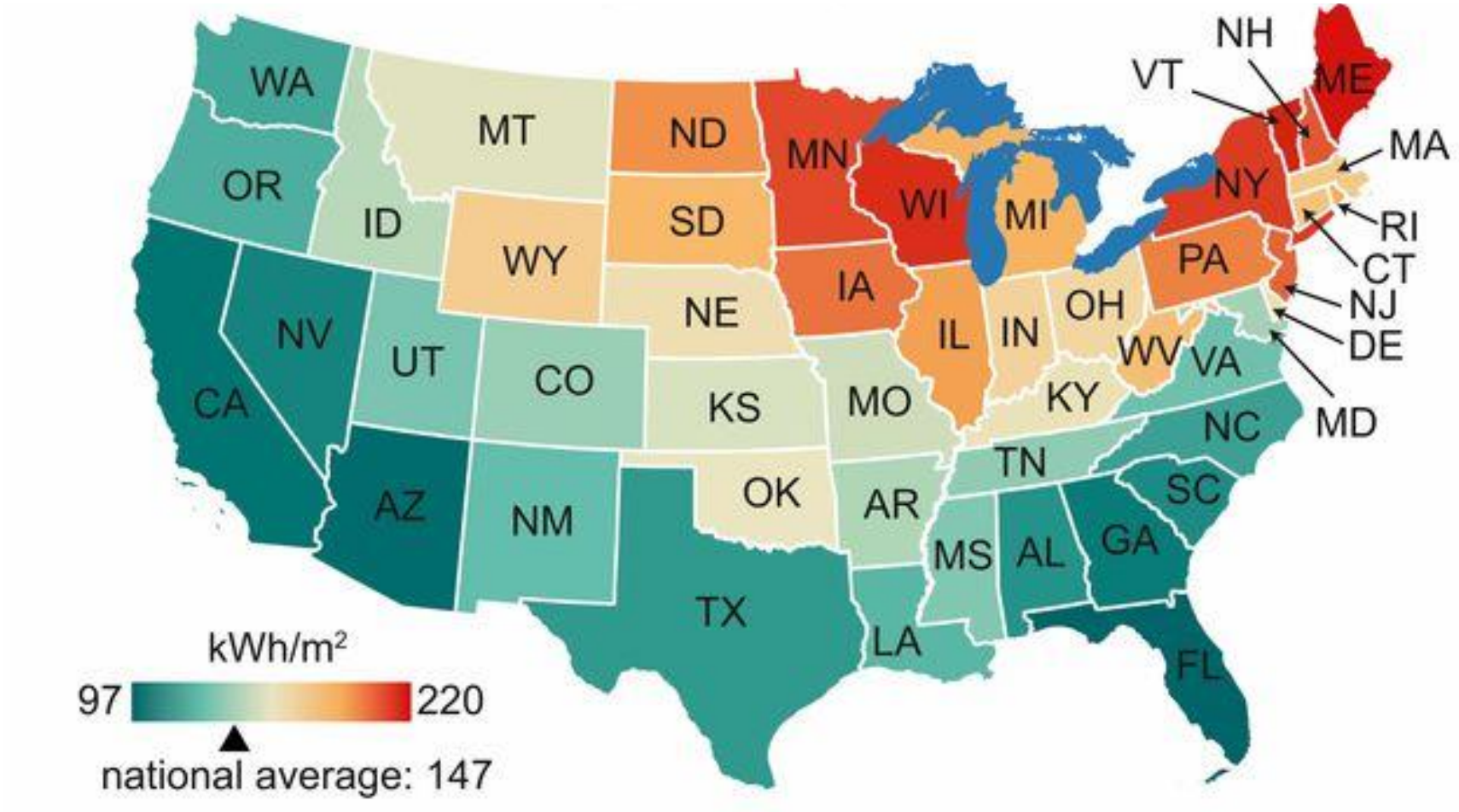


The average commercial building wastes 30% of the energy it consumes.

Energy efficiency is the single largest way to eliminate this waste, reduce emissions, and save money.

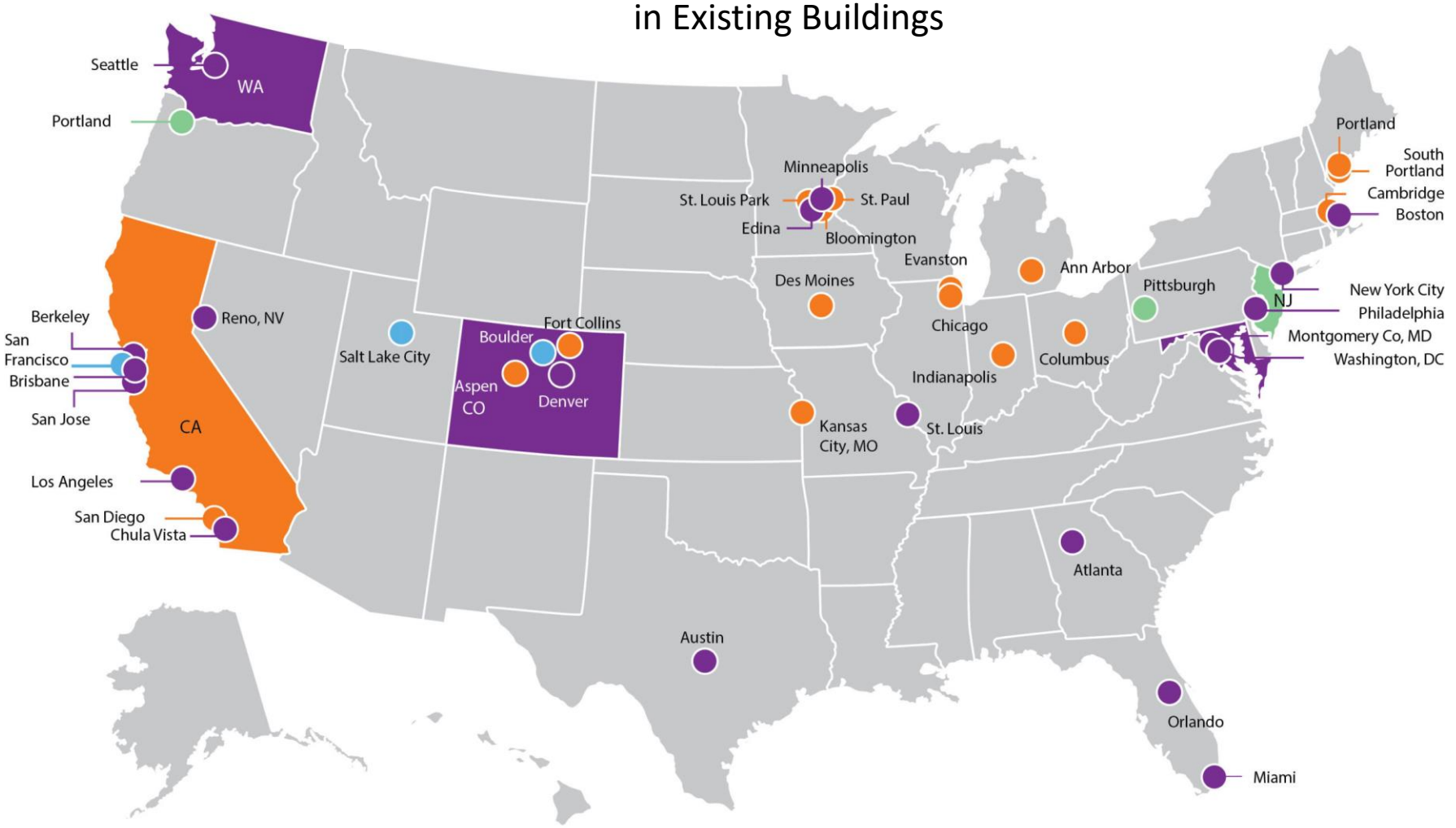
Source: U.S. Energy Information Administration 2012 Commercial Building Energy Consumption Survey.

Energy intensity of residential buildings in 2015 by US state



Benjamin Goldstein et al. PNAS 2020;117:32:19122-19130

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



IMT
INSTITUTE FOR MARKET TRANSFORMATION

The Goal

Work with building owners, the business community, facilities management professionals, building energy experts, and others to tailor a policy for Madison that will improve the energy efficiency of commercial buildings and reduce overall energy use and GHG emissions while providing benefits to building owners and tenants.

Reduce Energy Use

Reduce Energy Bills

Reduce GHG Emissions

Support Green Jobs

Process & Progress

- Research existing building energy efficiency policies
- Characterize Madison's commercial building stock & energy use
- Connect with local stakeholders to understand opportunities and challenges
- Develop program proposal
- **Iteratively review and revise with community input**
- Develop policy

Findings from Commercial Building Stock Analysis

Row Labels	Number	% of Total Buildings	Average Energy Intensity (kBTU/ft2)	Total Annual Energy Use (kBTU)	% Annual Energy Use (kBTU)
0-10,000	3408	69.59%	96.5	1,138,366,018	18.94%
10,001-25,000	807	16.48%	72.6	914,120,902	15.21%
25,001-50,000	369	7.54%	81.7	1,057,859,688	17.60%
50,001-100,000	193	3.94%	90.7	1,207,115,960	20.08%
100,001-250,000	107	2.19%	81.5	1,227,707,054	20.43%
>250,000	13	0.27%	93.4	465,113,478	7.74%
Grand Total	**4897**	**100.00%**	**90.9**	**6,010,283,100**	**100.00%**

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

Outreach to Stakeholders & Peers

- Began January 2021
- Included building energy professionals, building owners, large building portfolio managers, facilities management professionals, real estate professionals, the business community, MG&E, Alliant Energy, Focus on Energy, and peer cities
- More than 60 individuals from over 35 organizations and local governments

What did we learn?

From energy professionals:

- There's a big opportunity to save energy and money.

From the Madison community:

- Timing matters. Building owners need time learn, plan, and budget.
- It is important to keep costs down.
- Some prefer that the data isn't posted publically.
- Some are already doing the work, and they should be able to get credit for that.
- It is important to recognize achievements.

From other cities:

- Similar programs are delivering results!
- Support matters. A thoughtful program launch and Help Desk are best practices for success.
- You can't manage what you can't measure. Helps translate goals into action.
- Very useful for a data driven approach to program development and design.
- Folks who run buildings know their buildings best. Enabling and empowering facilities managers to continue and grow into this space is worth doing.

Building Energy Savings Program

Benchmarking: Commercial buildings 25,000 square feet (sq. ft.) and larger annually assess and report building energy use to the City.

Tune-ups: Commercial buildings 50,000 sq. ft. also perform building tune-ups and report results to the city every four years.

The City will provide:

- training and assistance for building owners and operators on each element of the program.
- annual reports to building owners on how their building compares to others in our community, opportunities for improving efficiency, available funding and resources, and more.
- and recognition for leaders and top performers.

Why this approach?

High impact. Benchmarking and tune-ups reduce energy use by 10-15%.

Low cost. No big capital investments. Payback of 2-3 years.

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

Provides flexibility. Building owners to choose their path forward.

Recognizes variation. Works for buildings with different ages and uses as well as changing conditions.

Benefits of Benchmarking & Tune-ups

BUILDING OWNERS

Saving energy, reduce energy bills, reduce GHG emissions, information on building energy use and ways to improve

PUBLIC

Reduce GHG emissions, improve indoor and outdoor air quality, support local energy efficiency jobs, improve public health

STATE AND LOCAL GOVERNMENTS

City-wide data to inform priorities, programs, and funding allocations; ability to track energy and climate goals

TENANTS/ RESIDENTS

Improved comfort, productivity, and tenant satisfaction, improved building performance and potential cost savings

Efficiency at Work in Madison

Leading Madison businesses and institutions are already taking advantage of energy efficiency practices like benchmarking and tune-ups to save energy and save money.

Here today:

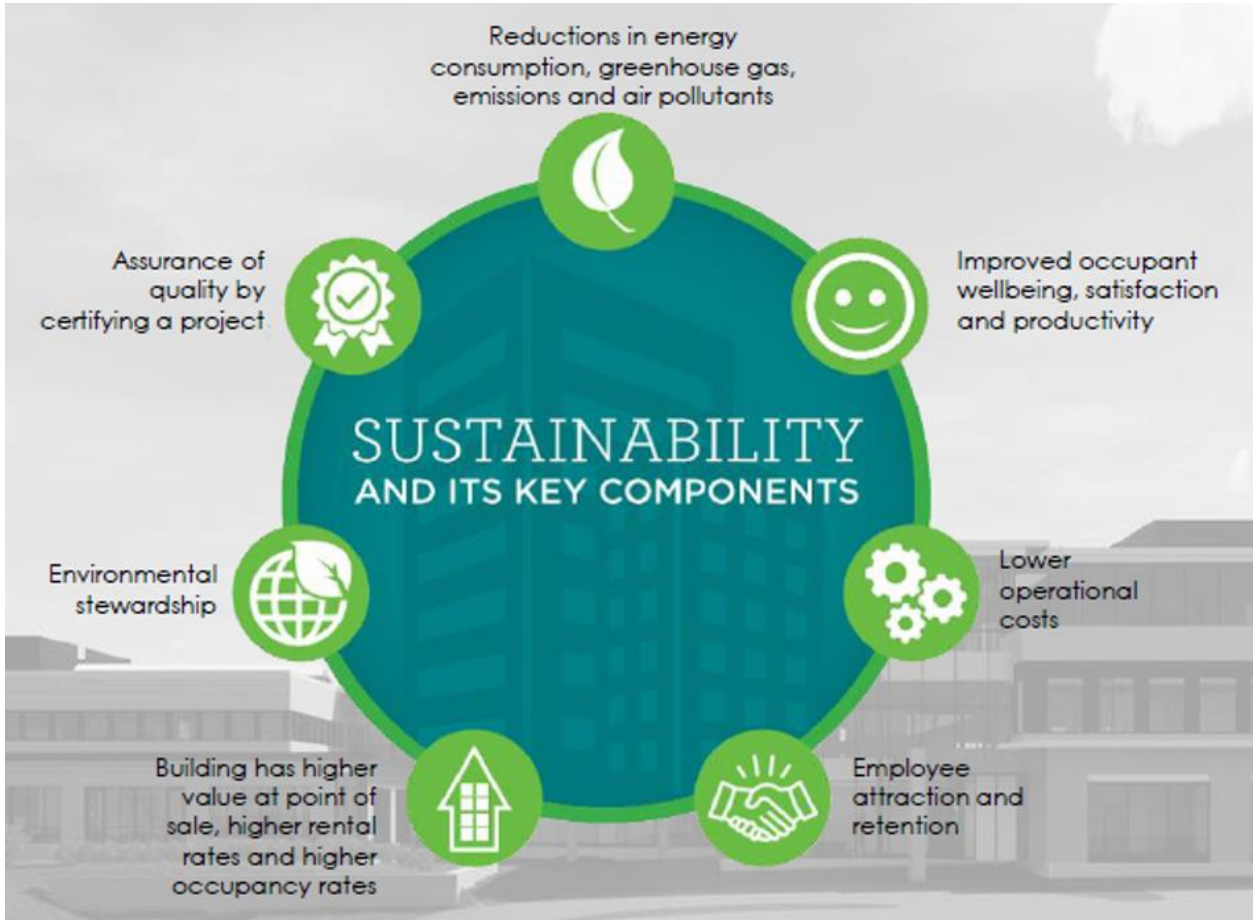
UW Credit Union

UW Health

UW Credit Union

Energy Efficiency

We follow LEED certification guidelines for all new construction & remodeling projects. We've installed motion detector lights, high-efficiency boilers, pumps & chillers, use low VOC paints & much more. We also have a company-wide initiative to reduce electricity usage in the summer months.



UW Health

East Madison Hospital
4602 Eastpark Blvd. in Madison
505,000 square feet, 55 patient beds
Opened our doors to patients in 2015

May 2018 to May 2022

- Energy Star score improved 4%
- Site EUI (kBtu/sf) improved 1.1%
- Surgical cases increased by 40%
- Patient days increased by 35%

How did we accomplish this?

- SEM with Focus on Energy
- Looked closely at scheduling
- Demand response
- HVAC set-back's in our OR's

Program Details

What buildings does this apply to?

Non-residential, commercial buildings at least 25,000 sq. ft.

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

Which buildings are NOT included?

- Buildings less than 25,000 sq. ft.
- Residential buildings or residential portions of buildings
- Parking lots, garages, or portions of buildings used for parking.
- Buildings used for industrial or manufacturing purposes

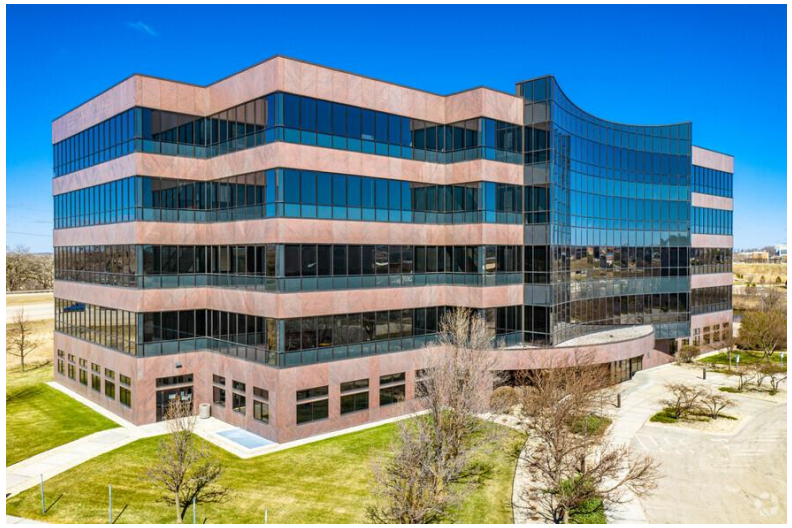
Top Row
~50,000 ft^2

931 East Main

16 North Carroll

406 Science Drive

2921 Landmark Place - 105,000 ft^2



10 Terrace Ct - 154,000 ft^2

525 Junction Rd – 357,106 ft^2

Annual energy benchmarking

Energy benchmarking is assessing and analyzing a building's annual energy use. Annual energy benchmarking enables building owners and operators to understand current energy use patterns, identify opportunities to save energy and money, and track changes over time.

Importantly, benchmarking does NOT require a building to meet a particular performance standard.

Commercial buildings can be benchmarked annually using EPA's ENERGY STAR Portfolio Manager.

- Building owners or staff can complete benchmarking – no special training is needed.
- Benchmarking data will *not* be displayed publically/online.

Provides energy savings of 2.4% year over year up to 8 to 10% overall.

How do I benchmark a building?

1. Create an ENERGY STAR Portfolio Manager Account
2. Enter the building's characteristics
3. Enter whole-building energy use data for the previous year
4. Electronically submit the energy report to the City

A Help Desk will be available to answer questions and assist during the submission process.

ENERGY STAR® Portfolio Manager®

What data is needed for benchmarking?

ENERGY STAR Portfolio Manager collects the following data for all properties:

- Property Name
- Property Address
- Total Gross Floor Area of Property
- Irrigated Area
- Year Built/Planned for Construction Completion
- Occupancy
- Number of Buildings
- 12 consecutive months of whole-building energy data, including electricity, natural gas, propane, etc.

Additional data may be collected based on the selected building type.

Not all building types are eligible for an ENERGY STAR score, and an ENERGY STAR score is not required for this program.

Building Tune-ups

A building tune-up is a review of energy systems, controls, and maintenance practices, along with minor tweaks to bring them up to a good state of operation.

These tweaks result in 10 - 15% annual energy savings for a building.

- Tune-ups are performed by a qualified tune-up specialist, which could be trained building/facilities staff.
- Tune-ups would only be required for buildings 50,000 sq. ft. and larger every 4 years.
- A 4 year cycle enables building owners to recoup cost and realize savings, making tune-ups revenue neutral or positive for building owners.
- Tune-up data will not be displayed publically/online.

Equivalent pathways will be included to enable building owners to submit proof other energy efficiency achievements in lieu of a tune-up.

Whether it was built in the 1920's or 2020's – let's take good care of them both.

What's included in a tune-up?

TUNE-UPS OFTEN INCLUDE

Bill analysis: examine and verify energy and water data and perform basic billing analysis.

Sensors: examine for proper operation and appropriate location.

Schedules: examine schedules of all equipment for actual daily, weekly, holiday, and seasonal schedules; determine optimal schedules.

Set points: examine setpoints for all zones and equipment.

Outside air control: calculate ventilation requirements, measure actual ventilation rates, and determine optimal ventilation delivery and control.

Equipment controls: determine optimal equipment controls for energy efficient operations.

Maintenance check: check for common maintenance items that impact energy usage.

Design issues: identify design issues leading to a high energy use such as missing insulation, mission controls, large leaks, unbalanced systems, critical zones.

Lighting: identify outdated lighting technologies, over-lit spaces, and areas needing lighting controls.

Water: note leaks or inefficiencies

Equivalent pathways for tune-ups

POTENTIAL EQUIVALENTS INCLUDE

- High certified ENERGY STAR Score (75 or greater?)
- LEED Gold or Platinum O+M
- Net Zero Energy Certification issued by International Living Future Institute (ILFI)
- PHIUS Certification for Buildings
- Building Energy Quotient (bEQ) Certified
- High Building Energy Asset Score
- Low EUI (20 kBTU/sq. ft. or less?)
- Recently completed ASHRAE Level II audit and implemented recommendations with a simple payback of 3 years or less
- Reduced EUI 15% or more in last 2 years
- Additional pathways?

One-year extensions for tune-ups

Building owners could also apply for a one-year extension to meet tune-up requirements for the following reasons:

- New buildings, where the certificate of occupancy was not yet issued for some or all the calendar year being reported
- Buildings with high vacancy rates, typically of 50% or more
- Buildings whose owners are in financial hardship (evidence of foreclosure or bankruptcy needed)
- Building is going to be demolished or undergoing a major renovation
- Other?

Additional Details

What about tenant occupied spaces?

It is the responsibility of building owners to work with tenants to meet program requirements.

The City will provide guidance and information for tenants and for communicating with tenants.

What if I own a large portfolio of buildings?

The City will work with owners of a large number of buildings to create an alternative schedule(s) for compliance so that many buildings aren't all due to comply at once.

Additional Program Elements

Trainings: The City will offer free trainings on the elements of this policy, including templates, forms, and guidance; training in benchmarking via ENERGY STAR Portfolio Manager

Support: Help Desk will be available to answer questions and assist during the compliance submission process.

Information: The City will issue building owners reports on how their building compares to others in our community, on resources available for energy efficiency upgrades, and more.

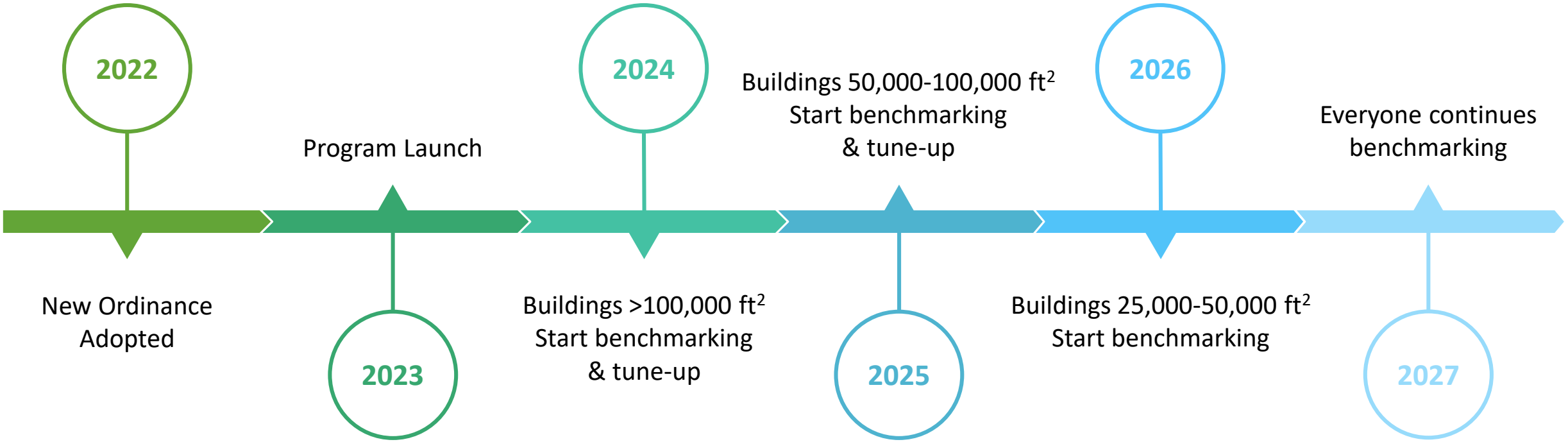
Recognition: The City will recognize leaders and top performers through a variety of mechanisms.

We are also exploring potential workforce development opportunities with partners, ways to cultivate peer learning in our community, and other elements to drive success.

Bring your best ideas!

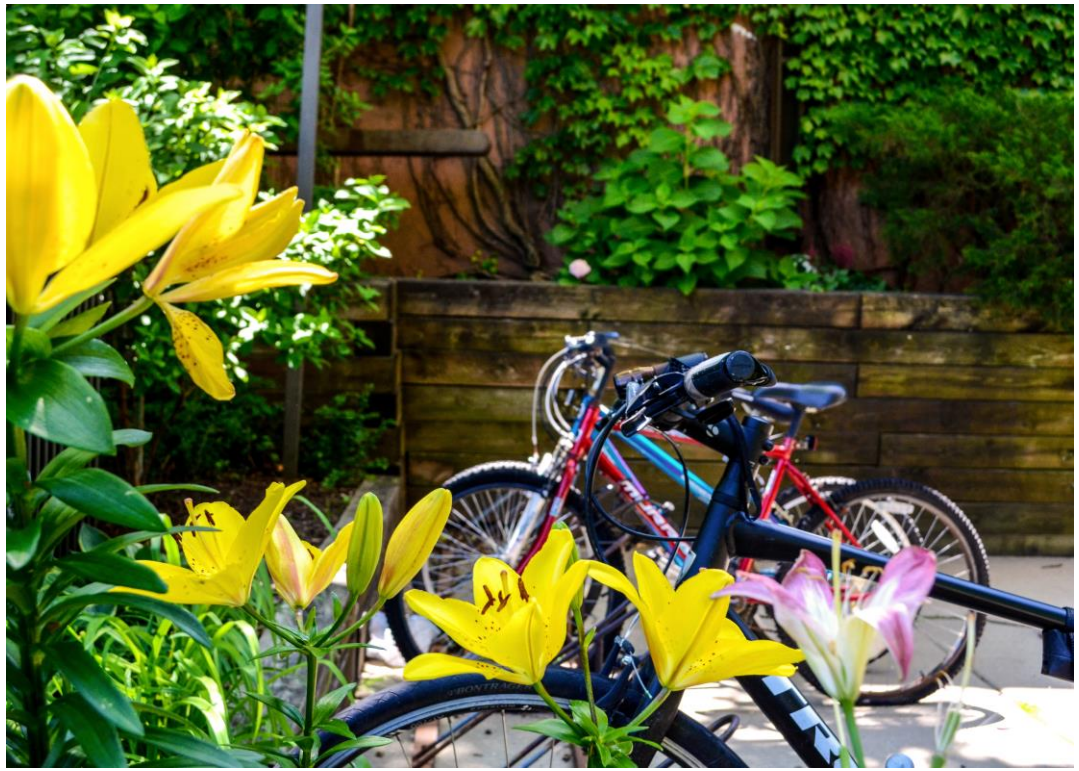
Example Timeline

Workshop 1



Next Steps

- Workshop series to discuss details
- Racial Equity and Social Justice analysis
- Additional outreach as needed
- Draft ordinance
- Ordinance introduced to council, reviewed, and adopted
- Program development and launch



Get Involved + Spread the Word

- Workshop 1. Covered Buildings, Timeline, Benchmarking Elements - Wednesday, July 20 @ 1p.
- Workshop 2. Tune-up Elements - Wednesday, July 27 @ 1p.
- Workshop 3. Supporting Elements - Wednesday, August 3 at 1p.

Register at: https://www.eventbrite.com/e/368559039007

Thank you!

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