

Memo to EDC and Alders

DATE: FEBRUARY 15, 2023

PROPOSAL: BUILDING ENERGY SAVINGS CODE

LEGISTAR FILE ID #: 75280

PREPARED BY: SUSTAINABILITY AND RESILIENCE PROGRAM STAFF, MAYOR'S OFFICE

This memo provides more information – in addition to that provided at the January 18 Economic Development Committee meeting – to address issues and questions raised in January 18 public comment.

Benchmarking Data Collection and Security

A building's annual energy use will be benchmarked using ENERGY STAR Portfolio Manager. This free web-based tool was developed by the U.S. EPA and has been used by individuals and businesses across the country since 2000. **Portfolio Manager is already used by about 50 percent of the U.S. commercial building market.**


For all building types, ENERGY STAR Portfolio Manager needs the following information:

- 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 information may be needed based on the selected building type. Check out the [data collection worksheet](#) to get a complete list of the information needed for each building type. And, if someone does not have precise values for fields, they can use approximate values or estimates provided by Portfolio Manager.

Importantly, the City would NOT have access to all of the data entered into Portfolio Manager. The proposed ordinance requires that building owners share ONLY the ENERGY STAR® Statement of Energy Performance with the City. This one-page summary includes only high-level, whole-building energy consumption, energy use per square foot (also called energy use intensity or EUI), and 1-100 ENERGY STAR score, when available. No data about a landlord or tenant is included in this summary. And the section for the Signature and Stamp of a Verifying Professional is not required.

Example 1: Sample Statement of Energy Performance for a building for which Portfolio Manager can calculate an Energy Star score.



ENERGY STAR® Statement of Energy Performance

LEARN MORE AT energystar.gov

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ENERGY STAR® Score¹

Sample Property

Primary Property Function: Office
Gross Floor Area (ft²): 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

Property Address	Property Owner	Primary Contact
Sample Property 123 Example St Madison, WI 53703	Property Inc. 123 Early Bird St. Madison, WI 53703	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)

Site EUI	Annual Energy by Fuel	National Median Comparison
75.7 kBtu/ft²	Electric - Grid (kBtu) 2,453,824 (64%)	National Median Site EUI (kBtu/ft²) 103.5
	Natural Gas (kBtu) 1,273,766 (33%)	National Median Source EUI (kBtu/ft²) 247.6
	Propane (kBtu) 91,000 (2%)	% Diff from National Median Source EUI -27%
Source EUI		Annual Emissions
181.2 kBtu/ft²		Greenhouse Gas Emissions (Metric Tons CO2e/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 Privet Dr
 Arlington, VA 22201
 703-111-1234
 john_smith@energyinspectors.com



Professional Engineer Stamp (if applicable)

Example 2: Statement of Energy Performance for a building for which Portfolio Manager does not calculate an Energy Star score, in this case City of Madison’s Central Library.


ENERGY STAR® Statement of Energy Performance

N/A

Central Library

Primary Property Type: Library
Gross Floor Area (ft²): 119,200
Built: 2013

For Year Ending: December 31, 2021
Date Generated: February 08, 2023

ENERGY STAR®
Score¹

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

Property Address Central Library 201 W Mifflin St Madison, Wisconsin 53703	Property Owner City of Madison, WI 210 MLK, Jr. Blvd. CCB Room 115 Madison, WI 53703-3342 () -	Primary Contact Jon Evans 210 MLK, Jr. Blvd. CCB Room 115 Madison, WI 53703-3342 608/243-5893 jevans@cityofmadison.com
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Property ID: 4274399
LEED US Project ID: 1000007725

Energy Consumption and Energy Use Intensity (EUI)

Site EUI 49.9 kBtu/ft ²	Annual Energy by Fuel Electric - Grid (kBtu) 2,928,733 (49%) Natural Gas (kBtu) 3,018,120 (51%)	National Median Comparison National Median Site EUI (kBtu/ft ²) 75.1 National Median Source EUI (kBtu/ft ²) 143.6 % Diff from National Median Source EUI -34%
Source EUI 95.4 kBtu/ft ²	Annual Emissions Greenhouse Gas Emissions (Metric Tons CO ₂ e/year) 758	

Signature & Stamp of Verifying Professional

I _____ (Name) verify that the above information is true and correct to the best of my knowledge.

LP Signature: _____ Date: _____

Licensed Professional

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Professional Engineer or Registered Architect Stamp (if applicable)

Portfolio Manager is also in compliance with the U.S. government’s Federal Information Security Management Act requirements for security and has been granted full authorization to operate. The system has been categorized as “Low Impact” in accordance with Federal Information Processing Standards 199. ENERGY STAR infrastructure follows the most current government guidance and standards by the National Institute of Standards and Technology to ensure that the system is properly secured. The security controls in place cover operational, management, and technical types of controls. The Portfolio Manager tool also has protections in place that go beyond the “Low Impact” requirements, such as access control, configuration management, patch management, physical and environmental protection, and system and information integrity.

Tune-up Process

A tune-up is simply a check of a building’s systems that impact energy use: the building envelope, HVAC systems (heating, ventilation, and air conditioning), conveying systems (i.e. elevators, escalators, and moving walkways), domestic hot water systems, and lighting. A tune-up checks the sensors, settings, controls, and physical condition for these systems to make sure they are operating as needed and aren’t accidentally wasting energy. And, operational adjustments, maintenance, or minor repairs are made so the system is in a good state of operation.

A Tune-up Workbook provides overarching guidelines for assessing each building system as well as required and voluntary adjustments or repairs (corrective actions) for improving performance. Example workbooks from Philadelphia and Seattle have been shared with the community at multiple points during engagement.

- **If the proposed ordinance is adopted, the City would use [Philadelphia’s Tune-up Workbook](#) as a starting point for developing a workbook for Madison in collaboration with community partners.**
- The tune-up process provides a lot of flexibility so that any adjustments or repairs meet current building operation needs. This is not a prescriptive process.

The proposed ordinance also provides flexibility for building owners to choose among several compliance pathways. The options are:

- A) Conduct a building tune-up
- B) Choose an alternative compliance pathway and share documentation that a building is already efficient OR on the road to efficiency:
 1. Certified ENERGY STAR score of 75 or greater from EPA
 2. LEED Gold or Platinum Operation and Maintenance (O+M) from USGBC
 3. Completing full commissioning or retrocommissioning
 4. Net Zero Energy Certification issued by International Living Future Institute (ILFI), Phius (Passive House Institute US), or other similar organization
 5. Recently reduced energy use per square foot by 15% or more
 6. Recently completed ASHRAE Level II audit and implemented recommendations with a simple payback of 3 years or less
 7. Has a site EUI (energy use per square foot) of 20 kBtu per sq. ft. or less
- C) Receive an extension or exemption based on specified criteria

Up-front Cost and Payback for Tune-Ups

Tuning-up save money on utility bills. So rather than simply landing as a cost, tune-ups are an investment in a building that provides a fast return. There are numerous data points on the real-world costs and payback of tune-ups and similar work from around the U.S. **The City is estimating an average cost to be about \$0.20 per square foot for tune-ups conducted by outside contractors.** This is based on what we have heard about the local market by asking local energy efficiency professionals, asking other cities, consulting with experts at EPA and Lawrence Berkeley National Lab, and looking at other data and reports, for example:

- In [Seattle’s Tune-Up Accelerator Program](#), the average cost of a tune-up was \$0.21 per square foot, with a range of \$0.13 to \$0.27 per square foot in different building types.
- A [2020 meta-analysis of building retuning by Pacific Northwest National Lab](#) (PNNL), found that tune-ups typically reduce building energy use by 12% (with some buildings saving as much as 52%). And these energy savings reduced annual energy costs by \$0.16 cents per square foot (with some as high as \$1.70/sf). **This means tune-ups typically payed for themselves in less than 2 years** (the simple payback period ranged between 0.3 to 3.5 years, with 1.7 years being the median).

Again, the above cost estimates are for a professionally-contracted tune-up. Building owners may also choose to use their own facilities staff to tune-up their buildings.

Legality

The City Attorney’s office has reviewed the proposed ordinance and determined that it does **not** violate any state or federal laws.

Incorporating Community Input

In the course of community engagement, staff incorporated numerous comments and recommendations into program design, including the following:

Community Input	How it was incorporated
Potential difficulty in working with tenants to complete benchmarking or tune-ups	<ul style="list-style-type: none"> • Deadline extensions and waivers adjusted • Ability to submit partial reports • ENERGY STAR Portfolio Manager is well-equipped to provide estimates when precise information is unavailable • Ability for tenant to take on compliance
Important to keep costs down	<ul style="list-style-type: none"> • Benchmarking and tune-ups are among the lowest cost policy options • Free benchmarking and reporting tool • Ability for in-house staff to complete benchmarking and tune-ups • Providing no cost training and technical support • No cost tune-up specialist certifications available

	<ul style="list-style-type: none"> Alternative compliance schedule for large portfolio owners
Public release of data	<ul style="list-style-type: none"> Minimized data reported to the city – only requiring <i>building Portfolio Manager Summary of Energy Performance</i> and simple tune-up report Forgoing public disclosure, which most other cities have
Some are already doing the work to be energy efficient	<ul style="list-style-type: none"> 7+ alternative compliance pathways enable flexibility and a choose your own path approach Building owners can submit documentation that a building is already efficient or on the pathway to efficiency in lieu of a tune up
Building owners and managers will need technical support, especially those new to benchmarking and tuning-up	<ul style="list-style-type: none"> ENERGY STAR Portfolio Manager is well documented with a lot of existing training materials Compliance is phased in and wouldn't start right away. First benchmarking would happen in 2024 and first tune-ups in 2025. City will host free trainings on program elements and provide a help desk

Flexibility in the ordinance

The City heard from community members, folks in cities with similar policies, and City staff that it is important to build administrative flexibility into the ordinance. Below are examples of where flexibility is incorporated into the proposed ordinance.

- Extensions or Exemptions** – A building owner can request a deadline extension or exemption from a reporting requirement for many reasons, such as recently purchasing the building, encountering technical difficulties, experiencing financial hardship, etc. Knowing the City cannot anticipate every scenario, the ordinance also specifies that an extension or exemption can be granted for other reasons.
- Large portfolio owners** – Building owners have the option of working with the City to develop an alternative compliance schedule if they own 10 or more covered buildings. This way, building owners can create a schedule that works for them and not have their whole portfolio need to tune-up in the same year, which is not the intention of the program.
- Tune-ups and Alternative Compliance Pathways** – The intent of the program is to put all large commercial buildings on a pathway to energy efficiency. We recognize that many building owners and managers are already investing in energy efficiency for their buildings or that they may want to pursue a different pathway than a building tune-up. To allow flexibility, building owners can choose to conduct a building tune-up OR meet 1 of 7 other conditions/certifications. The ordinance also enables the City to add additional pathways.

- **Tune-up specialist qualifications** – The proposed ordinance requires a tune-up to be completed by a qualified professional with experience and training in building operations. Tune-up specialists can be on-site building staff or a contracted service provider. To allow flexibility, there are currently 10 different certifications listed and the ordinance enables additional qualified certifications to be accepted, for example if there are certifications specific to an industry, new certifications are developed, or current ones change.

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 Public Information Meeting, and collaboration boards from the three workshops.