Frequently Asked Questions

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BENCHMARKING

BENCHMARKING OVERVIEW

What is building energy benchmarking?

Energy benchmarking is assessing and analyzing a building's annual energy use. 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 prescribed level of energy use.

How much energy does benchmarking save?

Energy savings can vary from building to building. 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 a total of 8 – 10% reduction in annual energy use.

Why is the City requiring energy benchmarking for commercial buildings?

Commercial building energy use accounts for 30% of Madison's greenhouse gas (GHG) emissions. To meet our goal of reaching net zero carbon emissions community wide by 2050, we must reduce emissions from all sources, including our built environment.

Why not a voluntary program?

Reducing greenhouse gas emissions at the pace and scale needed to address the climate crises means reaching as many buildings as possible. Research shows that even the best voluntary energy efficiency programs reach 2-3% of buildings annually, which is not widespread enough to meet our climate goals. This is why the City is working to establish a program that will improve efficiency across a large portion of our commercial building stock.

Moreover, individuals and businesses in Madison already have access to many tools and resources to voluntarily benchmark their energy use. The City partnered with Sustain Dane on their MPower Champions Program 2009-2018, which supported local organizations to benchmark and improve energy efficiency among other ways to reduce their environmental impact. And EPA's ENERGYSTAR Portfolio Manager has provided free tools and support for energy benchmarking to individuals and businesses across the country since 2000. This new program seeks to build on the successes that voluntary programs demonstrate to reach a significant portion of our building stock and create widespread benefits for our community.

Do other cities have similar policies?

Yes, over 40 other cities, counties, and states have exiting building energy efficiency legislation. Visit the Building Performance Policy Center for additional information and a map summarizing adoption of these policies across the U.S.

How much does benchmarking cost?

We've chosen a free reporting tool, the web-based ENERGY STAR Portfolio Manager. ENERGY STAR Portfolio Manager is the nationally-preferred tool to measure and track building energy and water use.

Who can benchmark a building, and is any special training needed?

Building energy benchmarking in ENERGY STAR Portfolio Manager can be performed by anyone, including a building owner, property manager or operator, leasing agent, a 3rd party energy consultant or others. If a building already works with an energy service provider, they may offer benchmarking services.

For those new to Portfolio Manager, EPA provides free online resources to help you get started with Portfolio Manager at https://www.energystar.gov/buildings/benchmark/get_started and trainings at https://www.energystar.gov/buildings/training.

How long will it take to benchmark my building?

Benchmarking takes an average of a few hours annually.

COVERED BUILDINGS - BENCHMARKING

Which buildings must benchmark annual energy use?

All non-residential, commercial buildings with floor space of at least 25,000 square feet (sq. ft). In mixed-use buildings, only the non-residential portion of a building counts toward the size threshold and is covered by the program. This includes buildings that have the following uses, for example:

- banking/financial services,
- data centers,
- education (such as K - 12, daycare, pre- school, post-secondary school),
- entertainment/public assembly (such as convention centers, gyms, movie theaters, performing arts, meeting halls, recreation centers),
- food sales and services (such as restaurants, supermarkets, grocery stores, convenience stores),
- healthcare (such as hospitals, medical offices, senior care communities, assisted living and nursing care) ,
- lodging (such as hotels, motels),
- offices,
- retail (such as retail goods establishments, retail service establishments, department stores, mass merchandising stores, specialty stores, enclosed retail malls and shopping centers),
- technology/science (such as labs and research facilities),
- warehouses, distribution, and package delivery facilities,
- and buildings occupied by non-profit organizations including places of worship.

Which buildings are NOT included?

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

How do I know if my building is included in the program?

The City will develop a covered buildings list in advance of program launch and inform owners of buildings on the list about the program and requirements for their building.

COMPLIANCE - BENCHMARKING

What is the process for annual energy benchmarking?

Energy benchmarking is completed in four steps:

1. Create an ENERGY STAR Portfolio Manager account.
2. Enter your building's characteristics (e.g. size, building use).
3. Enter whole-building energy use data for the previous year.
4. Electronically submit the benchmarking report to the City.

What data is needed for annual energy 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 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.

If you do not have precise values for fields, you can use approximate values or estimates provided by Portfolio Manager.

Will benchmarked buildings get an ENERGY STAR score?

Some property types are eligible to receive a 1 – 100 ENERGY STAR score in Portfolio Manager, which compares the property to similar properties nationwide. A score of 50 represents median energy performance, while a score of 75 or higher means your building is a top energy performer. When you benchmark your building in Portfolio Manager, EPA will provide an ENERGY STAR score for your building if it is eligible. This score will be included in your benchmarking report.

Sometimes, such as in tenant occupied space, a building owner may not have all information necessary to receive an ENERGY STAR score on an eligible building type (e.g. number of computers in a tenanted office space). In these case, owners may utilize EPA estimates as a proxy.

How will energy benchmarking data be used?

Energy benchmarking data will be used by the City in two ways. First, the City will provide the building owner a customized annual report for each covered building that includes: a summary of whole-building energy use over the year; how the building's energy is changing from year to year; info on how the 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 performance, including rebates, incentives, and financing.

Second, the City will aggregate the data received to learn more about our energy use and greenhouse gas emissions citywide and track changes over time. This data-driven approach will allow the City to learn and

communicate the impacts of the program, such as changes in overall energy use, efficiency, and GHG emissions; identify areas of success, such as particular sectors that show the greatest improvement; and opportunities for improvement, such as city, state, or federal programs that link up and provide additional resources or support. This report will only include aggregate information. No data or information about individual buildings will be included except with owner permission, for example, to share a success story.

What if I have questions about the benchmarking process?

Reach out to the Sustainability and Resilience Manager (Jessica Price, jprice2@cityofmadison.com) for questions about the Building Energy Savings Program. Once the program launches, a Help Desk will be available to answer questions and assist building owners, building staff, and contractors one-on-one during the benchmarking and tune-up submission process.

TUNE-UPS

TUNE-UPS OVERVIEW

What is a building tune-up?

A building tune-up is a process of reviewing of energy systems, controls, and maintenance practices, and making minor adjustments and fixes as needed to bring them up to a good state of performance. Meta-analysis by Pacific Northwest National Laboratory (PNNL) shows that tune-ups result in a median annual energy savings of 12% and a median annual cost savings of $0.16 per square foot for a building. They also provide a more comfortable space for tenants and reduce greenhouse gas emissions and other pollutants which have negative impacts on public health and safety.

How much energy will I save by doing a tune-up?

It varies by building and mechanical systems. Research by PNNL shows that tune-ups typically reduce annual energy use by about 12%, but some buildings saw as much as 52% annual energy savings.

Why is the City requiring building tune-ups for commercial buildings?

Commercial building energy use accounts for 30% of Madison's greenhouse gas (GHG) emissions. To meet our goal of reaching net zero carbon emissions community wide by 2050, we must reduce emissions from all sources, including our built environment. Building tune-ups expand the savings found through energy benchmarking under BESP by turning energy performance knowledge into action.

Why didn't the City make tune-ups voluntary first?

Research shows that even the best voluntary energy efficiency programs reach 2-3% of buildings annually, which is not widespread enough to meet our climate goals. This is why the City is working to establish a program that will improve efficiency across a large portion of our commercial building stock.

In addition, Wisconsin has had voluntary energy incentive programs in place for decades through Focus on Energy and others. These programs have demonstrated progress, yet reaching our climate goals requires widespread action, and City leaders have asked us to take bold steps to reduce GHG emissions in our community, including the tune-ups requirement.

Do other cities have similar policies?

Yes, over 40 other cities, counties, and states have exiting building energy efficiency legislation. Visit the Building Performance Policy Center for additional information and a map summarizing adoption of these policies across the U.S.

What are my compliance options?

Buildings have a choice between three compliance pathways:

- Conduct a building tune-up (see Compliance – Building Tune-up section)
- Demonstrate you have a high efficiency building or have recently taken actions that substantially improved your building's efficiency (see Compliance – Alternative Compliance Pathways section)
- Receive an exemption based on specified criteria (see Waivers and Exemptions section)

Who can conduct a tune-up?

Tune-ups must be supervised by a "qualified tune-up specialist," a person qualified to conduct a tune-up assessment, identify required and voluntary corrective actions, verify that actions were completed, in some cases perform tune-up actions, and submit documentation to the City. See the Tune-up Specialist section for more information on qualifications and training.

Can my own staff conduct a tune-up?

Yes, but only if they meet the tune-up specialist qualifications. See Tune-up Specialist section.

COVERED BUILDINGS

Which buildings must tune-up?

All non-residential, commercial buildings with floor space of at least 50,000 square feet (sq. ft). In mixed-use buildings, only the non-residential portion of a building counts toward the size threshold and is covered by the program. This includes buildings that have the following uses, for example:

- banking/financial services,
- data centers,
- education (such as K - 12, daycare, pre- school, post-secondary school),
- entertainment/public assembly (such as convention centers, gyms, movie theaters, performing arts, meeting halls, recreation centers),
- food sales and services (such as restaurants, supermarkets, grocery stores, convenience stores),
- healthcare (such as hospitals, medical offices, senior care communities, assisted living and nursing care) ,
- lodging (such as hotels, motels),
- offices,
- retail (such as retail goods establishments, retail service establishments, department stores, mass merchandising stores, specialty stores, enclosed retail malls and shopping centers),
- technology/science (such as labs and research facilities),
- warehouses, distribution, and package delivery facilities,
- and buildings occupied by non-profit organizations including places of worship.

Which buildings are NOT included?

- Buildings less than 50,000 sq. ft.
- Residential buildings or residential portions of buildings.
- Buildings used for industrial or manufacturing purposes.

How do I know if my building is covered by the program?

The City will develop a covered buildings list in advance of program launch and inform owners of buildings on the list about the program and requirements for their building.

How are parking spaces treated in this requirement?

A tune-up must include a review of the lighting, ventilation, and other systems in parking areas and other unconditioned spaces. Indoor parking spaces should be excluded from the building square footage when determining if your buildings is required to comply (and by when).

Do the spaces that my tenants use have to be tuned-up?

Yes, the building owner must coordinate with tenants about either accessing their space or cooperating on conducting a tune-up. There is one exception: tenant spaces that are 5,000 square feet or smaller, occupied by a tenant and where the tenant owns, operates, and maintains the mechanical equipment (e.g. heating, ventilation, air conditioning) do not need to be tuned up. Ultimately, the building owner is responsible for ensuring a single tune-up report for the building is submitted to the City, unless a single tenant occupies the whole building and has accepted responsibility for complying with the tune-up policy.

I own a large portfolio of properties – do I have to follow the same compliance deadlines?

Not necessarily. Building owners have the option of working with the City to develop an alternative compliance schedule if they own 10 or more covered buildings.

Large portfolio owners seeking alterative schedule(s) for compliance will submit a BESP Large Portfolio Compliance Plan for review and approval by the City.

Why is tuning up required every 4 years?

While tune-ups generate energy savings, those savings can taper off over time as building systems are adjusted or additional maintenance is required. A 4-year cycle enables building owners to recoup cost and realize savings, making tune-ups revenue neutral or positive for building owners while increasing the asset value of the building.

COMPLIANCE – BUILDING TUNE-UP

What is the process for completing a building tune-up?

A tune-up is completed in four steps:

1. Select a tune-up specialist. A tune-up specialist can be on-site staff or an external consultant, and must meet some training and minimum experience requirements. See the Tune-up Specialists section for more information.
2. Conduct a building assessment. A tune-up specialist collects basic building information and characteristics, reviews benchmarking data, and conducts an analysis of energy bills.
3. Identify corrective actions. A tune-up specialist conducts a building walk through to assess operations and maintenance of building systems that use energy or impact energy consumption. They identify required and voluntary corrective actions to improve energy efficiency. The tune-up specialist shares these findings with the building owner.
4. Implement and verify corrective actions. The building owner completes the required corrective actions using in-house staff, existing contracted service providers, and/or the tune-up specialist. The tune-up specialist verifies the required corrective actions have been implemented and the corrected equipment or systems are functioning as intended. Voluntary corrective actions can be taken anytime.
5. Report to the City of Madison. The tune-up specialist completes the tune-up report (form to be provided), reviews it with the building owner, and electronically submits it to the City. The building owner is responsible for ensuring the form is submitted.

What building systems will need to be assessed during a tune-up?

Base building systems or subsystems that use energy or impact energy consumption will be assessed, including:

- building envelope
- HVAC systems (heating, ventilation, and air conditioning)
- conveying systems (i.e. elevators, escalators, and moving walkways)
- domestic hot water systems
- and electrical lighting systems.

For each system, the following elements will be examined if present:

- 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 to meet current building needs.
- Set points: examine set points for all zones and equipment.
- Outside air controls: 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 and that impact energy usage.
- Design issues: identify design issues leading to a high energy use such as missing insulation, missing controls, large leaks, unbalanced systems, critical zones.
- Lighting: identify outdated lighting technologies, over-lit spaces, and areas needing lighting controls.
- Domestic plumbing system: determine maintenance needs.

Can I sample a portion of my building's equipment during the tune-up?

Yes. A tune-up specialist may review a sample of repetitive, identical minor equipment such as fan coils, plumbing fixtures, or lighting sensors on the same schedules. The sample must include at least 15% of pieces of identical equipment, and at least 10 of each in buildings 50,000 – 99,000 square feet or 20 of each in buildings 100,000 square feet and larger. Tune-up specialists will be asked to describe their sampling approach in the tune-up report.

Sampling should not be applied to major systems, such as chillers, boilers, and air handling units.

What are corrective actions?

Corrective actions are operational adjustments, maintenance, or minor repairs to existing building equipment or systems to resolve issues identified during the building assessment. Operational adjustments can be made to existing equipment without purchasing new equipment. Maintenance or repairs are what is commonly considered to be normal, routine actions. Appropriate corrective actions will be included in the tune-up workbook.

What guidelines should be used for a tune-up?

Once the program is adopted, a Tune-up Workbook will be developed that provides overarching guidelines for assessing each building system's elements as well as required and voluntary corrective actions for improving efficiency if issues are identified with an element. Examples of tune-up workbooks from cities with similar policies include:

- City of Philadelphia's Tune-up Workbook - https://www.phila.gov/media/20210702091928/OOS-BEPP-tune-up-workbook.xlsx
- City of Seattle's Tune-up Workbook - https://www.seattle.gov/documents/Departments/OSE/Tune-Ups/Tune-Ups%20Report%20Workbook.xlsx

Will I have to take corrective actions on everything found during the assessment?

No. There will be both required and voluntary correction actions. Required correction actions are operational adjustments or repairs to existing building equipment. The tune-up workbook will detail which corrective actions are required and voluntary.

Who can implement the corrective actions included in the assessment findings?

In-house staff or contracted service providers can complete the corrective actions. The qualified tune-up specialist must verify that the work was complete and fulfills the assessment recommendations.

Will I have to replace a large piece of equipment, such as a boiler or chiller?

No. A building is *not* require to replace a major piece of equipment to comply with the BESP. We do, however, encourage building owners to consider installing the most efficient equipment possible, because it could potentially enable your building to comply with BESP through the alternative compliance pathway option related to energy use reduction. See the Alternative Compliance Pathways section for more information.

What building systems are exempt from tune-up assessments?

The following are exempt from assessment and corrective actions during a tune-up:

- Tenant-owned systems when the tenant's leased space is 5,000 square feet or less and the system only serves that space.
- Industrial processes.
- Lighting associated with surface-level parking lots. However, lighting and HVAC associated with parking structures is not exempt from a tune-up.

COMPLIANCE – ALTERNATIVE COMLIANCE PATHWAYS

What if my building is already a great energy performer?

We recognize that many building owners and managers are already investing in energy efficiency for their buildings. To allow flexibility, building owners can choose to conduct a building tune-up (see Compliance – Building Tune-up section) or demonstrate they have a highly efficient building or have recently taken actions that substantially improved their building's efficiency (see Compliance – Alternative Compliance Pathways section).

How can I demonstrate that I have a highly efficient building or have recently take actions to substantially improve my building's efficiency?

Building owners can submit proof that their building meets one of the following conditions or certifications:

- Certified ENERGY STAR score of 75 or greater from EPA
- LEED Gold or Platinum Operation and Maintenance (O+M) from USGBC
- Completing full commissioning or retrocommissioning

- Net Zero Energy Certification issued by International Living Future Institute (ILFI), Phius (Passive House Institute US), or other similar organization
- 15% or more reduction in the building's energy use intensity (EUI)
- Recently completed ASHRAE Level II audit and implemented recommendations with a simple payback of 3 years or less
- Site EUI of 20 kBTU per sq. ft. or less

The program guidance will provide additional details about how recent each of these achievements must be to qualify. Additional alternative compliance pathways may be included in the future.

My building is old and will never meet any of these measures or certifications of high energy efficiency. Does that mean I can't comply?

No. It just means that other pathways to compliance might be more appropriate. For example, you can still complete a building tune-up (see Compliance – Building Tune-Up section). Any building can undergo a tune-up assessment – regardless of age, energy use, or other characteristics. The corrective actions required as a result of a tune-up will be specific to your building and its existing systems, which means that you'll be able to comply with the policy. Or, if you recently improved your building's efficiency by 15% or more, you could still qualify for the alternative compliance pathway.

TUNE-UP SPECIALISTS

What does a tune-up specialist do?

The tune-up specialist's job is to make sure that building systems are operating per the needs and expectations of the building's use and are not in need of maintenance or repair. For example, one type of building use may have higher ventilation needs than another, but a Tune-Up Specialist could look at each and help ensure that it is running efficiently for that intended use and not wasting energy by identifying and addressing any hidden issues with operations or maintenance.

What does it mean to be a qualified tune-up specialist?

A tune-up specialist is a person qualified to conduct a building tune-up assessment, identify required and voluntary corrective actions, verify that actions were completed, in some cases perform tune-up actions, and submit documentation to the City. To demonstrate their qualifications to perform this work, tune-up specialists must have three years of experience in building commissioning, tune-ups, energy auditing, or building energy system management and hold one of the following certifications:

- PE in Mechanical or Architectural Engineering licensed in Wisconsin
- Building Operator Certification (BOC) Level II administered by Midwest Energy Efficiency Alliance (MWEEA). Note, BOC Level I certification is not a pre-requisite for BOC Level II.
- Certified Energy Manager (CEM) administered by the Association of Energy Engineers
- Certified Building Commissioning Professional administered by the Association of Energy Engineers
- Existing Building Commissioning Professional (EBCP), issued by the Association of Energy Engineers
- Building Commissioning Professional (BCxP), issued by American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE)
- Building Energy Assessment Professional (BEAP), issued by American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE)

- Accredited Commissioning Process Authority Professional (ACPAP) approved by the University of Wisconsin
- Certified Commissioning Professional administered by the Building Commissioning Certification Board
- Commissioning Authority (CxA) administered by the AABC Commissioning Group (ACG)

Additional certifications can be added to this list by the City when they become available.

Does one tune-up specialist certification carry more weight than another?

No. All certifications are considered equal by this program. However, you may want to request references to learn how your tune-up specialist has performed for other clients.

How do I find a tune-up specialist?

- Do your on-site staff have any of the certifications listed above? If so, they are qualified to perform a tune-up of your buildings under this program.
- Do you have a regular maintenance contract? Check with contracted service providers; they may be qualified to perform a tune-up.
- Focus on Energy maintains a list of Trade Allies – contractors and service providers who partner with FoE to deliver energy efficiency and renewable energy products and expertise directly to Wisconsin residents and businesses. Search for "Retrocommissioning" using their online tool.

Is assistance available to cover the cost of getting certified as a qualified building tune-up specialist?

Focus on Energy offers full tuition reimbursement upon completion of Building Operator Certification. Check their Events and Trainings Calendar to see upcoming offerings. With enough interested students, the Midwest Energy Efficiency Alliance can provide additional trainings.

COSTS

How much will a tune-up cost?

It depends on your building's size and the complexity of your building's systems. The tune-up specialist you select should provide you with a general estimate of the cost based on the size of your building and your mechanical systems.

What should I use for a budget estimate?

The walk-through and corrective actions are separate steps in the tune-up process that will vary based on the size and complexity of your building and its mechanical systems. Required tune-up corrective actions will be based on assessment findings.

Are there incentives or other programs available to assist with the cost of conducting a tune-up?

Focus on Energy's Whole Building Tune-Up (WBTU) offering provides up to $1,850 in incentives for Wisconsin utility customers who successfully complete at least three of the eligible measures. Focus on Energy incentives and federal tax incentives are also available for those who take on additional projects to implement efficiency measures. If you're pursuing an alternative compliance pathway, the Inflation Reduction Act (IRA) provides tax credits up to $5 per square foot for energy efficiency improvements in

commercial buildings that deliver lower energy bills, such as improvements to a building's envelope, HVAC systems, lighting, and controls. Businesses can also receive tax credits covering 30% of the costs of installing solar power and battery storage.

ENFORCEMENT

What happens if my building doesn't comply by the required deadline?

Our primary goal is to work with building owners to make sure they can complete a building tune-up and improve energy efficiency. While the City of Madison has the legal authority to assess fines for non-compliance, we have designed the tune-up component of the Building Energy Savings Program with a variety of compliance pathways and extensions in response to extenuating circumstances.

A building owner may apply for a tune-up deadline extension for the following reasons:

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

The City may further grant an owner a reasonable extension of time to comply upon proof of technical difficulties.

Should a building owner fail to comply with the policy by the reporting due date, the City will issue a warning notice, explaining any grace period, and outlining potential fines for continued non-compliance.