Energy and Water Efficiency Toolkit for Small Business

Empower your small business to jump-start its energy and water management program.

EPA United States Environmental Protection Agency

ENERGY STAR® Energy and Water Efficiency Toolkit for Small Business

ENERGY STAR for Commercial Buildings

The ENERGY STAR Energy and Water Efficiency Toolkit for Small Business is designed to empower your business with the tools and resources to jumpstart or enhance your energy and water management program. Use this toolkit to learn how to:

Benchmark and understand your business's energy and water use.

Learn how to use the EPA's ENERGY STAR measurement and tracking tool, Portfolio Manager, to compare your business's energy use to similar types of businesses across the country and track your energy performance over time. Discover how energy consumption changes in response to changes in weather, occupancy, and usage, and learn how simple changes can significantly reduce your energy bill. In addition, you can use Portfolio Manager to track and manage other resources, including waste and water use. Although this toolkit focuses mainly on energy efficiency, as you improve your energy use, take advantage of the activities to also look at improving your water use efficiency.

Use the Energy and Water Efficiency Checklist to walk through your business.

Create a Green Team with your facility manager and staff to walk through your business and pinpoint opportunities for improving energy and water efficiency. Most businesses can improve their energy and water efficiency with low- or no-cost changes in operations.

Encourage your team to adopt energy- and water-efficient habits.

Take action to eliminate energy and water waste by launching a behavior change campaign that encourages your staff (and customers) to reduce their environmental footprint through energy- and water-efficient habits both at your business and in their homes. A campaign has the potential to transform the culture of your business and make a big difference for the environment.

Measure cost reductions and finance efficiency upgrades.

Understand how energy efficiency can impact operating costs, and how measuring that impact helps you demonstrate the benefits. Learn about payback periods and other key financial concepts, as well as tools your business can use to help pay for lighting retrofits and other energy efficiency upgrades. Learn more about how increased water use impacts energy use.

Spread the word and celebrate success.

Once you've learned the ropes, spread the word about your achievements to your community. You can even launch an energy and water efficiency competition to get other businesses in your area excited about saving energy and money and protecting the environment.

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Understanding Energy Efficiency and ENERGY STAR

Why Energy Efficiency?

Energy efficiency is the fastest, cheapest, and largest single resource solution for simultaneously saving energy, saving money, and reducing greenhouse gas (GHG) emissions. Small businesses across the country are turning to energy efficiency to decrease their costs and free up funds for other expenses. Entire buildings can become ENERGY STAR certified, just as office and commercial food service equipment can be. Multiple property types can earn ENERGY STAR certification, signifying superior energy performance. These buildings consume about 35 percent less energy than similar buildings across the country — benefitting business budgets and the environment.

A Note on Small Businesses

There are many types of businesses that are "small;" this toolkit is designed for a wide variety of business and organization types. If your business or organization is looking for more specialized information, ENERGY STAR has resources for the following business types at energystar.gov/smallbiz, including for:

- **Convenience Stores**
- **Grocery Stores**
- **Home-Based Businesses**
- **Lodging**
- **Renters and Tenants**
- **Restaurants**
- **Small and Medium Manufacturers**
- **Vehicle Dealerships**

These and future efficiency efforts are of critical importance, as commercial buildings are responsible for nearly 20 percent of all energy consumption in the United States. Yet as much as 30 percent of the energy consumed in many small businesses is wasted!

Through the market-based, voluntary ENERGY STAR program, the U.S. Environmental Protection Agency (EPA) is helping the commercial building sector improve energy efficiency where Americans work, shop, play, worship, and learn. These efforts have created jobs, saved money, and contributed to cleaner air and the protection of human health. Thousands of organizations — including nearly 40% of the Fortune 500® — partner with ENERGY STAR. Together with EPA, they deliver cost-saving energy efficiency solutions that protect the climate, improve air quality, and protect public health.

Over the life of the program, every dollar spent on ENERGY STAR has resulted in $230 invested by American businesses and households in energy-efficient infrastructure and services, and nearly $350 in energy cost savings for American business and households. Since 1992, ENERGY STAR and its partners have helped American families and businesses:

- Save 5 trillion kilowatt-hours of electricity.
- Avoid more than $500 billion in energy costs.
- Achieve 4 billion metric tons of GHG reductions.

Energy Efficiency at Your Business

The first step toward improving your business's energy performance is to understand how cost-effective, sustainable improvement of your building is achievable and in your best financial interest. Improving your building's energy efficiency will recover resources that you can use to focus on its main purpose. Measurable improvements are often possible with low-cost/no-cost operations and management improvements.

The Impact of Increased Water Efficiency on Energy Use

Energy and water efficiency are closely tied together. In most cases, electricity or natural gas is used to heat water, and this costs money. The more heated water your business consumes, the more energy you can save by optimizing water use. Additionally, treating and pumping water and wastewater may well be the number one use of electricity by your municipality. You can save water, energy, and money with the EPA's WaterSense program. The EPA created WaterSense to help American consumers and businesses use water more efficiently. Reducing water use lowers the costs associated with operating and maintaining equipment, as well as the energy needed to heat, treat, store, and deliver water throughout the property. WaterSense promotes water-efficient products and practices to help commercial and institutional facilities save water, energy, and operating costs.

Activity 1: Getting Started with Benchmarking in Portfolio Manager

Your benchmark provides a baseline from which your core team can plan, manage, and track improvement projects toward success. You can't manage what you don't measure.

ENERGY STAR Portfolio Manager is a free online tool provided by EPA that you can use to benchmark the current energy and water use of your property. With Portfolio Manager, you can calculate your building's baseline energy and water consumption, track your energy and water use over time, track your waste, and see how your property compares to other similar business types nationwide through the 1 – 100 ENERGY STAR score. Armed with this information, you can make informed decisions on efficieny improvements and understand progress. These Portfolio Manager instructions focus first on energy benchmarking; if you are also planning to benchmark your water use, you can follow similar steps.

Step 1: Set Up your Portfolio Manager Account

To begin, you'll either need to use an existing Portfolio Manager account for your property or create a new account. Go to energystar.gov/benchmark.

For users with an account: Enter your username and password in the login box, and click **Log In.**

For new users: Click the Create Account link to complete your **account setup**.

Step 2: Add a Property

Follow these instructions to create a property, specify its primary use, and enter basics like location and construction date.

From the "MyPortfolio" page, click **Add a Property** 

to add a building to your portfolio.

Select the primary function of the property type. Indicate the number of buildings. Make sure that "Existing" option is selected and click **Get Started!**

Enter the facility information and click Continue.

Tip: Certain key terms appear in blue text, which you can hover over or click for more information.

Step 3: Enter Property Use Details

In this step, you'll tell Portfolio Manager more about your property use.

Complete the Property Use Details table. For now, it's only required that you complete the fields marked with an asterisk (*) as required, but it's a good idea to provide as much detail as possible.

Once complete, click **Add Property** to continue.

Step 4: Add an Energy Meter

An **energy meter** is a piece of equipment that tracks the amount of electricity a building consumes. Buildings can also have submeters, which track energy consumption in spaces within the building.

In this step, you'll tell Portfolio Manager how much and what kind of energy your property consumes. To start, you'll create one energy meter for each fuel type your property uses and enter the data reported in your utility bills. This allows Portfolio Manager to give you a clear picture of your energy performance. Work with your facility manager or office manager to find your records for the past 12 months and to select the correct options requested by Portfolio Manager.

Water Meters: After adding an energy meter and meter entries, find the "Water Meters" section on the "Water" tab and follow the same process below.

Step 4A: Create Meters

Find and click the grey "Energy" or "Water" tab and then click **Add a Meter**.

Indicate how your property uses energy or water. Click **Get Started!**

Click each meter row to enter the name, type, units, and first bill date for that meter. Click **Create Meters.**

The "Meter Name" field can contain letters, numbers, and can be your utility service agreement number (e.g., Electric, Natural Gas, 10002748, etc.).

Step 4B: Enter Energy Data

Each of your entered meters should be displayed. Click the ▼ icon to choose the meter you would like to edit. Enter your actual energy consumption data for at least 12 calendar months using one of the following methods:

- Click **add an entry** and make a separate entry for each month of utility data.

OR

- Click **single-meter spreadsheet** to download an Excel file you can use to make all entries at once. Complete the template, click **Choose File**, and navigate to the file on your computer, and click **Upload**.

Once you have entered meter data for all meters, click **Continue**.
Exception: If you've entered submeters, this step might be a little more complicated. Learn more about configuring meters for performance metrics.

Back on the **Energy** tab, you'll see a summary graph of your energy consumption.

Step 5: Track your Energy Use with Portfolio Manager

Follow these steps each month to track your energy performance over time:

Log in to Portfolio Manager and click on your building's name.

From the "Summary" page of your building, select the "Energy" or the "Water" tab. Click **Enter Your Bills** and select the meter for which you'd like to enter new information.

Click **Add another Entry** and repeat **Step 4B** to enter your energy data for that month. Repeat for each meter in the "Energy Meters" section.

Take a step back and look at your facility "Summary" page. You'll notice that Portfolio Manager has calculated your current and baseline **1 – 100 ENERGY STAR** score or your **Energy Use Intensity (EUI)**, which signifies how your property compares to similar facilities nationwide. An ENERGY STAR score of 50 indicates average energy performance, while a score of 75 indicates performance superior to 75 percent of similar property types. You can click the "Change Metric" link to see other metrics such as monthly costs. Portfolio Manager also gives you other types of information — in fact, there **are dozens of different metrics** Portfolio Manager can track for you!

Need Help?
Find the "Help" link at the top right of any page in Portfolio Manager.

Activity 2: Understanding Efficiency Management

Now that you've benchmarked your property's energy consumption, you can start to examine how you use energy daily. Figure 1 highlights energy use by square footage of common small business types — note the large variance in energy intensity based on types of operations. Some business types, such as vehicle dealerships, are not included in Figure 1 due to a current lack of data.

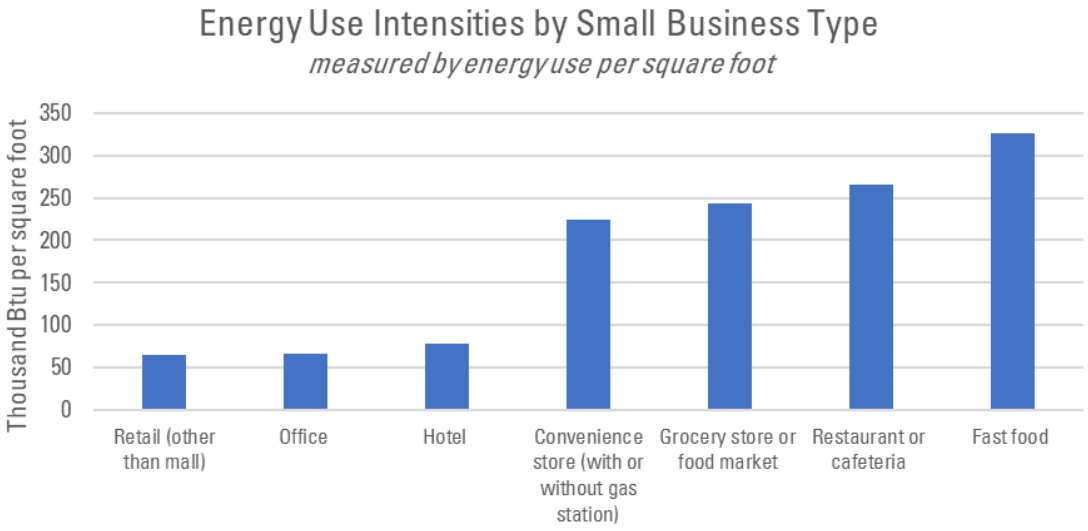


Figure 1: Sum of major fuel consumption totals and gross energy intensities by building activity subcategories. Measured in British Thermal Units (BTUs) based on U.S. Department of Energy Commercial Building Energy Consumption Survey (CBECS), 2018 data.

Energy Management

Luckily, there are significant opportunities for improving energy efficiency. But smart energy management for an entire building doesn't just happen — it requires a strategic approach.

Improving energy performance relies on having a comprehensive energy management program in place. Specific goals, a plan for improvement, regular evaluation of progress, and a dedicated staff member or team all contribute to a successful energy management program.

Energy management yields the best results when everyone is on board and participates in making the program a success. You may already have an energy management program in place. If not, the EPA's ENERGY STAR program provides guidance on crafting a successful energy management program based on the **Guidelines for Energy Management** (Figure 2).

These guidelines can provide you with an ongoing roadmap as you continue energy efficiency improvement projects at your business. The circular nature of this graphic also highlights continuous improvement.

Figure 2: The EPA's ENERGY STAR Guidelines for Energy Management.

Activity 3: Conducting an Energy and Water Efficiency Facility Review

An energy and water efficiency facility walkthrough provides the opportunity to find low- and no-cost ways to save energy and water. You can walk through the building on your own, but using a checklist (see Appendix A) is more effective with a group.

Together, you'll look for quick ways to save energy and water — and those quick fixes can add up to big savings! Many improvements can be made immediately and without significant expenditures or capital investments. Also take note of which activities may require outside assistance and financing.

Assessing Your Results and Determining Next Steps

After you've walked through the building and written down all the opportunities to save, regroup with your team and discuss ways to fix the inefficiencies you found. Create a plan and timeline to implement the changes.

Focus your planning first on reviewing the low-cost/no-cost improvement activities determined through the walkthrough of your facility. For those that are larger and outside the scope of your ability, consider whether an energy and/or water use audit can help identify additional specific areas for improvement. An audit is basically a survey of your property's energy and water use and is typically conducted by a professional. It includes specific energy and water consuming items, rates of consumption, and costs. If you are interested in both an energy and a water audit, you may need to conduct two separate audits; however, some auditors may be able to do both.

Activity 4: Implementing Efficiency Improvements

On the road to increased efficiency, the first stop is often behavior change. Encouraging building occupants to adopt energy-efficient habits can amount to significant savings. Turning off lights in unoccupied rooms, clearing vents of papers and debris, and swapping space heaters for sweaters are examples of "low-hanging fruit" that take little effort, but add up to big savings. Concurrent to behavioral changes, look at opportunities to make improvements through equipment and operations and maintenance upgrades.

Review your Energy Efficiency Results

What problems or "bad habits" did you notice based while walking through your facility with the checklist? What would a better habit look like? Use the information below to record each bad habit you frequently noticed, and a better habit to replace it.

Bad Habit	Better Habit
Example: Leaving lights on in empty offices during daylight hours.	Turn off the lights when leaving a room or turn off the lights when passing by an empty room with the lights on.

Based on your findings, decide which habits you want to try and change. Next, you'll formulate a strategy for encouraging better habits.

Get your Message Out

There are many ways to spread the word about energy efficiency and encourage better habits.

Display reminders: One simple way to encourage better habits is to post prominent reminders in common areas like hallways — you can either design your own posters and signs, or download and customize existing resources from ENERGY STAR Communications and Education Resources.

Share tips & tricks: If your organization has a daily or weekly newsletter or a daily announcement, add a regularly updated tip or trick to improving energy efficiency, like opening the blinds and reducing overhead light on cool sunny days to maximize daylight, or shutting blinds on warmer days to prevent excess heat and minimize the need for air conditioning.

Share the message in person: Determine if you can deliver a message about energy efficiency and its importance for your operations to your staff and colleagues. Explain how each person can make a difference and share one or two tips for saving energy.

Planning for and Implementing Projects

In addition to encouraging and rewarding behavioral change, you can also look to implement projects — either low-cost/no-cost projects that you manage or those that require external support.

Based on your Portfolio Manager results, you should have a clear picture of the energy and water use as well as the requirements of your property. And based on your walkthrough, you know which systems or appliances are in good condition and which may need replacement soon.

Choosing projects and defining the steps to accomplish them will help you clarify a plan. The size and complexity of the energy efficiency projects you undertake will most likely be the main factor in deciding who will manage the project implementation. For something as simple as replacing HVAC filters or replacing incandescent bulbs with LEDs, members of your team could complete the work. Depending on the skills available to your team, installing caulking and weather-stripping, ceiling fans, occupancy sensors for lights, LED exit signs, and programmable thermostats may be "do-it-yourself" projects not requiring outside help.

If you require outside help, Activity 5 highlights how to calculate savings.

Be sure to track your before-and-after energy use in Portfolio Manager, so you can celebrate your results. You can also use your results to help inform other campaigns and activities.

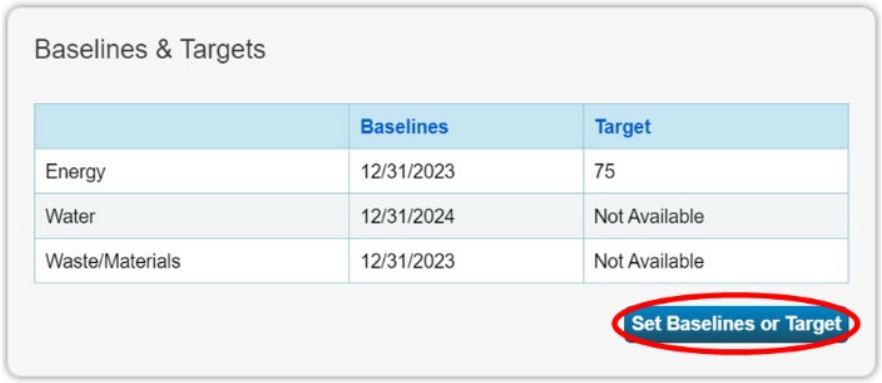
Activity 5: Calculating Savings and Financing Energy Efficiency

Set an Energy Performance Target in Portfolio Manager

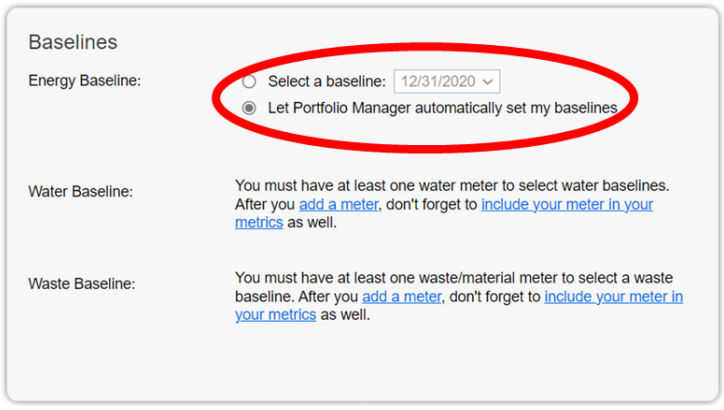
Following the directions below, use Portfolio Manager to estimate the amount of money you could save by improving your business's energy performance.

Log in to your Portfolio Manager account at energystar.gov/benchmark.

On the "MyPortfolio" tab, locate your facility in the dashboard menu and click your building name. If you're already viewing your facility, switch from the "Summary" tab to the "Goals" tab. On the "Goals" tab, scroll down to the "Baselines & Targets" box, and click on the blue **Set Baseline or Target** button.



To establish a performance target, you must first set a baseline for comparison. The baseline data will be sourced from your energy meters. If you haven't set up at least one meter for energy, water, and waste, then you won't have baselines for the respective category. After one or more meters have been created with the proper inputs, you can choose your baseline period or select **Let Portfolio Manager automatically set my baselines.**

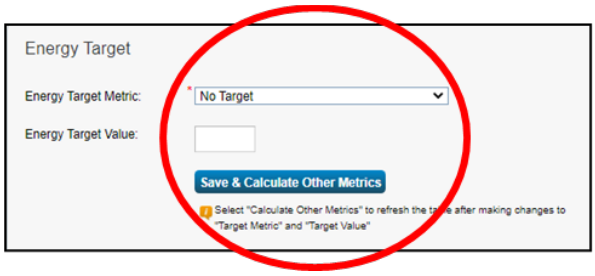


Note: For Water Baseline, you can add a meter if you have not already input one. If no meter has been input, setting a baseline will not be available.

In the "Energy Target" box, in the dropdown menu to the right of "Energy Target Metric," select what best applies to your building:

- Target percentage better than the baseline source EUI
- Target percentage better than the median source EUI

Enter the "Energy Target Value." Click the blue **Save & Calculate Other Metrics** button at the bottom of the box.



The table below will now show your targets and potential savings. The difference between your current energy use, cost, and emissions shows how much you could save.

Metric	Baseline (Dec 2012)	Current (Dec 2012)	Target*	Median Property*
ENERGY STAR score (1-100)	75	75	92	50
Source EUI (kBtu/ft²)	83.6	83.6	62.7	107.2
Site EUI (kBtu/ft²)	26.6	26.6	20.0	34.1
Source Energy Use (kBtu)	8,356,670.8	8,356,670.8	6,267,503.1	10,720,000.0
Site Energy Use (kBtu)	2,661,360.1	2,661,360.1	1,996,020.1	3,410,000.0
Energy Cost ($)	78,000.00	78,000.00	58,500.00	99,941.40
Total GHG Emissions (MtCO2e)	368.6	368.6	276.4	472.3

Review Results

In this sample, a 25% improvement in energy efficiency from the baseline could save nearly **$20,000** in utility costs! How much could you save?

Calculating Simple Payback Periods: Does your Energy-Efficiency Project Pay for Itself?

Energy-efficiency upgrades require some upfront investment, but they reduce energy use and save money on utility bills. How quickly can an energy-efficiency upgrade pay for itself? Use the table on the following page to find out. Complete the calculations and record the resulting values.

Savings Calculators & Find Help

Visit energystar.gov/products to calculate the savings from ENERGY STAR qualified products and appliances.

Access information on financing energy-efficiency projects: www.energystar.gov/buildings/save-energy-commercial-buildings/finance-projects

Find expert help from Service and Product Providers: www.energystar.gov/buildings/save-energy-commercial-buildings/expert-help

Term	Calculation/Estimation	#	Value
Total Project Cost ($) The total cost of implementing the project.	The approximate cost of a lighting upgrade is XX.	A	$XX
Incentives ($) Rebates, grants, discounts, coupons, incentives, tax credits or anything helping to cover the cost of the project.	Sum up all incentives available in your area for lighting upgrades and record the total dollar amount. **Tip:** Check for rebates available in your area: energystar.gov/rebatefinder	B	$_____
Net Project Cost ($) The amount that must still be paid after incentives (i.e. Total Project Cost minus Incentives).	Total Project Cost (A) $_____ – Incentives (B) $_____ = Net Project Cost © $_____	C	$_____
Current Annual Cost of Electricity (dollar per year or $/yr) The amount currently spent on electricity in one year.	With your Portfolio Manager data add how much money is currently spent on electricity total and record the amount (d1).	d1	Total electricity cost: $_____/yr
Current Annual Cost of Lighting ($/yr) The approximate amount currently spent on lighting in one year.	In many properties, roughly 10 percent of electricity use is spent on lighting. Calculate the approximate total cost of lighting: Total annual electricity cost (d1) $_____/yr x %Lighting 26% = Lighting cost (d2) $_____/yr	d2	Lighting cost: $_____/yr
Percent Reduction (%) The estimated amount by which an energy efficiency upgrade will reduce electricity spent on lighting.	A lighting upgrade can reduce lighting energy use by about 30–50%. For the purposes of this calculation, let's assume a 40% reduction in the electricity spent on lighting. *No calculation needed.* = Simple Payback(C)/(E) $ / $ = _____ years	d3	40%

Activity 6: Evaluating Progress and Spreading the Word about Energy Efficiency

Step 1: Summarize What you've Learned

From the Facility Summary page in Portfolio Manager, use the "Select View" drop-down box to locate and record the following metrics:

Metric	Value	Units	View	Explanation
Current Score (1–100)		N/A	Summary: Energy Use	This number is your **1 – 100 ENERGY STAR score**, which reflects how your worship facility compares to similar facilities nationwide. A score of 75 or above is eligible to earn the ENERGY STAR for superior energy performance!
Current Site Energy Use Intensity		kBtu/sf	Summary: Energy Use	**Energy use intensity** is energy use per square foot. **Site** energy is the amount of heat and electricity consumed by a building as reflected in utility bills. **Weather normalization** adjusts actual energy data to accurately represent typical annual energy use given your location and climate.
Current Weather-Normalized Source Energy Use Intensity		kBtu/sf	Summary: Energy Use	**Source** energy is the total amount of raw fuel used to operate a building. This calculation includes the energy that is lost during production and transmission from the power plant to your worship facility.
Current Total GHG Emissions		MtCO2e	Performance: GHG Emissions	**GHG Emissions** are emitted during energy production and contribute to climate change. **MtCO2e refers to** metric tons of carbon dioxide equivalent.

Is your business already eligible to earn the ENERGY STAR? Do you need to improve energy efficiency before it can earn certification? Use this information to frame your strategy.

ENERGY STAR 1 – 100 score	Eligible to Earn the ENERGY STAR?	Next Steps
75 or higher	Yes, if it meets indoor air quality criteria!	Visit energystar.gov/buildingcertification to learn how to apply for certification.
50–74	Not yet	You have some work to do, but ENERGY STAR certification is within reach if you can improve the energy efficiency of your worship facility. Use the checklist in Appendix A to see what other steps you can take to improve your operating efficiency.
1–49	Not yet	The good news is that your worship facility has a lot of potential for energy savings. Some facilities have improved their energy efficiency by as much as 40, 50, and even 60 percent. You may benefit from a more thorough energy audit conducted by a professional, who can identify the precise causes of inefficiency in your facilities.

Your energy checklist results: Revisit the results of your checklist walkthrough and summarize your findings below. Try to simplify and combine your checklist into a few simple items.

Current Efficiency Measures

Example: All computers are ENERGY STAR qualified, and power saving settings are activated.

1.
2.
3.

Opportunities for Improvement

Example: Turn off lights and computers overnight.

1.
2.
3.

Your potential savings: Refer back to the savings figure you calculated by entering your utility and cost data in Portfolio Manager and setting an energy performance target. Starting with your baseline ENERGY STAR score, set a target score and then use that to determine your energy reduction potential (as a %) and associated potential savings.

The case for investing in energy efficiency: Use the results of your Simple Payback Period calculations (from the table in Activity 5) to complete the following information to capture the key figures for demonstrating the financial benefit of energy efficiency.

Project: Example – Replace fluorescent fixtures with LEDs

- **Total Project Cost: $**
- **Incentives: $**
- **Net Project Cost: $**
- **Potential Annual Savings: $**
- **Simple Payback Period (in years)**

Step 2: Share Findings

Once you've compiled the information you'd like to present, distribute your findings to staff and facility managers (if you have them). Consider one or more of the following options for getting the word out about what you've discovered:

Distribute a factsheet. Create a factsheet that highlights the results of your work. To avoid unnecessary paper waste, send your factsheet to your administrative office to distribute via email and/or post on the website. If you print hard copies, keep everything on a single sheet and only print a limited number of copies.

Make announcements: Consider making monthly announcements to share the latest energy consumption data and steps your business is taking to improve energy efficiency. Once your Portfolio Manager account is set up, you can provide monthly energy, water, and cost savings as well as GHG reductions based on your progress.

As you make announcements and share progress, don't forget to document your work with photographs — especially if staff are participating in activities to increase energy and water efficiency at your business. You can also share updates and results with your customers through newsletters, mailings, and on your website.

Display posters on campus: Design, print, and display posters highlighting your results and the importance of energy efficiency. Print resources are provided at energystar.gov (see Communication and Education Resources).

Continue your Sustainability Education

In addition to those included in this toolkit, the EPA has many resources to help businesses and organizations increase sustainability. Use the information below and on the EPA's website to learn how you can help protect human health and the environment for your local community.

***EPA's State and Local Climate and Energy Program** offers free tools, data, and technical expertise about energy strategies, including energy efficiency, renewable energy and other emerging technologies, to help state, local and Tribal governments achieve their environmental, energy and economic objectives.*

***The Green Power Partnership** offers a Guide to Purchasing Green Power and the Renewable Energy Power "Toolbox" which includes project development, policy considerations, financing approaches, project economics and evaluation, RFP and contracts guidance and consumer claims guidance.*

***WaterSense** is a resource for water saving opportunities as well as a label for water-efficient products certified to use at least 20% less water, save energy and perform as well as or better than regular models.*

*Learn how **reducing, reusing, and recycling** can help you, your community, and the environment by saving money, energy, and natural resources.*

***Safer Choice** helps consumers and organizations find products that perform well and contain ingredients that are safer for human health and the environment.*

***EJScreen** is EPA's environmental justice mapping and screening tool that provides EPA with a nationally consistent dataset and approach for combining environmental and socioeconomic indicators.*

Activity 7: Aim for Recognition

Consider joining as an ENERGY STAR partner, pursuing ENERGY STAR certification, or earning top honors as an ENERGY STAR Partner of the Year.

Become an ENERGY STAR Partner

Join ENERGY STAR as a partner to demonstrate your commitment to improving energy efficiency. There is no cost or obligation, and ENERGY STAR partners gain easy access to industry-leading tools, resources, and training and networking opportunities to support smart energy management. Learn more at: energystar.gov/join

ENERGY STAR Certification

Join other businesses across the country that have earned the ENERGY STAR, the nationally recognized symbol of superior energy management. If you have an ENERGY STAR score of 75 or above, you can start the application process today! Learn more at: energystar.gov/buildingcertification.

If your score is below 75, set certification as a goal for your business and use the tools you've learned in this toolkit to improve energy efficiency and get the score you need to certify. Check out the many other resources available at energystar.gov/buildings to help.

If your building type is not one that can earn certification (those small businesses that can include vehicle dealerships, lodging, convenience stores, grocery stores, and offices), consider setting an energy efficiency improvement goal to see how much energy you can save year on year.

Energy efficiency should never compromise indoor environmental quality; fortunately, both can be achieved if they are integrated in daily operations. While ENERGY STAR certification ensures superior energy performance, it also helps achieve improved indoor environmental quality. ENERGY STAR certified buildings must meet industry standards for outdoor air ventilation, thermal comfort, and lighting levels. More information can be found at energystar.gov/lpguide.

APPENDIX A: Conduct a facility walkthrough with the ENERGY STAR Energy and Water Efficiency Checklist for Small Business

Grab a clipboard and take this checklist along as you discover opportunities to increase energy and water efficiency at your business. Note that due to the many operating characteristics of various types of small businesses, some sections may not apply to your property.

For this checklist, focus on uncovering opportunities to save. When you find something, make notes about location, tools, materials, expertise, needed, or further research required.

1 Facility Management and Benchmarking

- ❑ Managing costs starts with knowing your baseline use. Start by printing a Data Collection Worksheet. This Worksheet will list all you need to benchmark your property in the free, online ENERGY STAR Portfolio Manager® tool for energy use, water use, and recycling/materials management.
  - ❑ There are data collection worksheets for many property types. Depending on the operations of your property (and whether you have a single building or many on your property), you will need to determine the data collection worksheet that matches your property.
- ❑ With the data collection worksheet in hand, collect property use data and utility bills in preparation to set up a Portfolio Manager account.
- ❑ Create an account in Portfolio Manager.
- ❑ Learn more and find all Portfolio Manager training and tech support.
- ❑ Educate and encourage staff to report leaks, turn off lights not in use, recycle, and support your efficiency efforts. Showcase your commitment to efficiency throughout your communications and marketing.
- ❑ Adopt a purchasing/procurement policy that specifies the EPA's ENERGY STAR, WaterSense® and Safer Choice® labeled products when applicable.

2 Lighting

- ❑ Evaluate the opportunity to upgrade to more energy-efficient lighting options.
  - ❑ Update lighting from incandescent or halogen bulbs to high-lumen LED equipment.

- ❑ Replace T12 fluorescents and obsolete magnetic ballasts, ideally with tubular LEDs (TLEDs). Retain existing T8s or T5s with electronic ballasts through their useful life.

- ❑ During daytime and evening hours, identify where lights have been left on in unoccupied spaces (including offices, restrooms, storage, hallways, etc.).
- ❑ During the day, look for "day-burners" – that is, exterior and parking lot lighting that is on and should only be on at night, and which has a failed or dirty light sensor.
- ❑ If upgrading your exterior lighting, consider shielded fixtures to direct the light where needed and reduce light pollution.
- ❑ Identify and assess opportunities to use automated lighting controls:
  - ❑ Occupancy/motion sensors for low-traffic areas.
  - ❑ Timers or daylight sensors to turn off exterior and parking lot lights during the day.
  - ❑ Dimming controls in locations where natural lighting (e.g., near windows, skylights, light tubes) can temporarily supplement or replace fixture lighting.
- ❑ Confirm that lighting controls are installed to "see" what they must and are operating as intended.
- ❑ Assess cleanliness of lamps/fixtures (dust, bugs, any debris) and the need to institute a regular cleaning plan for maximum light output.
- ❑ Identify where adding reflectors can amplify existing lighting.
- ❑ Consider purchasing an inexpensive light meter (under $30) to assess whether any areas are over-lit, compared to requirements or design levels.
- ❑ Review ENERGY STAR product information, calculators and find lighting, fans, and more lighting facts.

TIP:

Use your Zip Code in the rebate finders for ENERGY STAR® and WaterSense® labeled products to check on utility or retail vendor cash rebates before you buy any products. Note that utilities may have pre-purchase application requirements.

Building Envelope

- ❑ Inspect doors and windows to identify gaps or cracks that can be weather-stripped, caulked, or filled with foam insulation. This includes doors, windows, HVAC system joints, vents, and ducts. The idea is to be sure any indoor/outdoor air- exchange is not accidental but is deliberate ventilation. Consider using a "smoke pencil" from the hardware store to detect leaks.

- ❑ If in the market for new windows, consider high-efficiency options that may cost more up front but offer reasonable pay-back.
- ❑ Try to keep closed doors to the outside and to any unheated or uncooled areas.
- ❑ Consider installing solar film, awnings, vegetation, or insulated curtains for south and west windows to block summer heat gain. Ensure solar gain in the winter through south-facing windows.
- ❑ Consider strategic landscaping to save on water bills and cooling in the summer and heating in the winter.
- ❑ Inspect attic insulation levels and address any inadequacies. Add insulation as necessary if remodeling.
- ❑ Check on the roof, note and take photographs of and address any damage, including cracked shingles or other surface aging. In the attic, look for signs of leaks, membrane cracks/holes, or damaged insulation.
- ❑ Consider that white, reflective paint can significantly reduce heat gain and extend the life of some roofing.
- ❑ Take advantage of opportunities to use "residential" products and view savings resources.

TIP:

Consider "load shedding" to avoid demand charges during your utility system's "peak demand" time of day. This means understanding your utility's time of day rates and avoiding the use of as much of your equipment as possible during this time. Ask your utility about programs and financial incentives for customers to avoid contributing to peak demand.

Heating, Ventilation and Air Conditioning (HVAC)

- ❑ See ENERGY STAR HVAC products and resources.
- ❑ Ensure HVAC system components are being maintained regularly by qualified staff or under an annual maintenance contract to "tune-up" HVAC systems both pre-heating and pre-cooling seasons.
- ❑ Also remember to:
  - ❑ Regularly replace HVAC filters as needed during the heating and cooling seasons.
  - ❑ Ensure free airflow to and from supply/return registers (clear furniture, books, papers, or other materials).
  - ❑ Keep electronics and heat sources away from thermostats.

- ❑ Use window shades/curtains to block excess heat and educate staff about when to use them.

- ❑ Ceiling and personal fans can help with energy savings by making spaces feel cooler during summer months. A smart thermostat can be programmed to pre-cool or pre-heat spaces for comfort an hour prior to occupation. Avoid heating/cooling unoccupied spaces.
- ❑ Identify and discontinue the use of personal heaters in spaces that already have HVAC equipment. The use of personal heaters may indicate broader issues that should be addressed at the system level.
- ❑ Depending on outside temperature, set programming to turn off the HVAC 15-30 minutes before space use ends.
- ❑ Use "smart thermostats" and a temperature setback policy for heating/ cooling when the building is unoccupied (including any special considerations for summer/winter months).
- ❑ Have a plan for HVAC failures. Right size new systems by having contractors quote equipment based on high efficiency levels and reduced demand. Do not buy a larger system than you need.
- ❑ Where electricity is the fuel of choice, consider heat pumps or solar for water heating. Heat pumps cost much less to operate than electric resistance heating and even some gas heating units. Where gas is used for water heating, look for a minimum 90% boiler annual fuel use efficiency (AFUE).
- ❑ Maintain boilers regularly, checking for combustion efficiency and sediment.

Equipment/Plug Load

- ❑ For office equipment that needs replacing, consider ENERGY STAR certified options using the online savings calculators and available rebates.
- ❑ Turn off equipment left on overnight unnecessarily (including equipment left in sleep/idle or screen saver mode).
- ❑ Ensure that power management settings are activated on common area equipment such as TV monitors, printers, and copiers.
- ❑ Use advanced power strips for easy power disconnect.
- ❑ Train staff to unplug rechargeable devices once charged.

Kitchen and Food Service Areas

- ❑ If your business has a kitchen area — be it a restaurant or a breakroom, there are opportunities to save energy with the tips below.

- ❑ When purchasing new kitchen equipment, review ENERGY STAR models, calculate savings and find rebates in advance. All food service equipment is available on the ENERGY STAR website.

- ❑ Avoid placing heating equipment near cooling equipment.
- ❑ Verify oven thermostat accuracy and recalibrate if necessary.
- ❑ Establish operating procedures for cooking/baking equipment (for instance, preheating only when necessary, turning down/off equipment when not in use).
- ❑ Ensure that unused appliances are unplugged or on a power strip that is shut off.
- ❑ Identify major water uses. Find and fix any leaks— especially of hot water.
- ❑ Set water temperature 110 – 120 degrees or per local code to prevent scalding and save energy and money.
- ❑ Determine if low-flow pre-rinse spray valves can be installed.
- ❑ See the EPA's WaterSense® program for water saving labeled products and rebates, for indoor/outdoor water efficiency tips, and best practices.
- ❑ Assess plans for regularly cleaning refrigeration coils.
- ❑ Identify worn and/or leaky door seals/gaskets on refrigerators and freezers. To test, close a door on a piece of paper; if easily pulled out, replace the gasket.
- ❑ If your small business has a residential type refrigerator, it should be replaced if more than 10 years old. Commercial refrigerators/freezers are much larger and typically silver/stainless steel.
- ❑ Dispose of old refrigerators properly. See the EPA's Responsible Appliance Disposal Program.

TIP:

Consider an "all utility audit" to look for billing errors and proper rate classification for electricity, natural gas, heating oil, water/sewer, and telecommunications. The auditing firm is paid a pre-agreed percentage only after your refund is complete. If there is no refund due, you have confirmed you are not overpaying.

Water: Interior Hot and Cold

- ❑ Survey water use to identify major uses; find and fix any leaks — especially hot water leaks.

- ❑ Typically, set temperature 110 – 120 degrees or per local code to prevent scalds and to save energy and money.
- ❑ Consider "tankless" heaters (on-demand) for low-use areas.
- ❑ Insulate 7-year or older water heaters and the first 3' of heated water "out" pipe.
- ❑ Check out ENERGY STAR water heating product information and calculators; find local retailers and rebates.
- ❑ See the EPA's WaterSense® program for water saving labeled products and rebates, for indoor water efficiency tips, and best practices.

Water: Exterior Savings

- ❑ See the EPA's WaterSense® program for water saving labeled products and rebates, for indoor water efficiency tips, and best practices.
- ❑ Survey water use to identify major uses; find and fix any leaks — especially with irrigation.
- ❑ Water-efficient irrigation products and practices — such as native plantings, water budgeting, seasonal scheduling, or WaterSense labeled weather-based irrigation controllers — could cut the amount of water lost outside by as much as 50 percent.
- ❑ Consider xeriscaping, or dry, gardens that use rocks and succulents to reduce or eliminate the need for irrigation.

Waste Reduction and Recycling

- ❑ You can reduce waste through donations, recycling and composting programs.
- ❑ Donations: For those items you find yourself disposing of in the trash, try to find alternate methods to divert those materials out of landfill through implementing a donation system or bringing giveaways (books, clothes, shoes, household items) to shelters, university campus and public libraries.
- ❑ Recycling: ask your local waste hauler if they provide recycling pick up services; if not, find a local drop-off center. Place recycling stations where items can be sorted to avoid contamination in your recycling bins. Contamination includes food scraps, oil stains, liquids, film plastics, straws, plastic cutlery, napkins, receipts, yard waste, etc.
- ❑ Consider setting up a composting program for food waste.
- ❑ See the EPA's resources on reducing food waste.