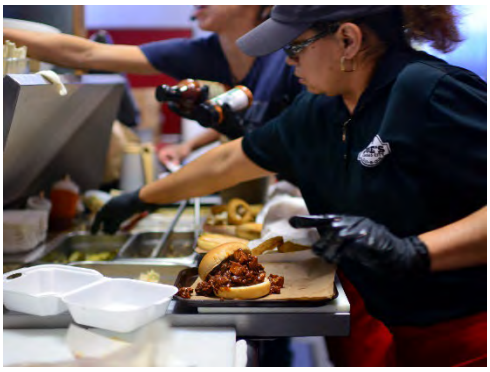
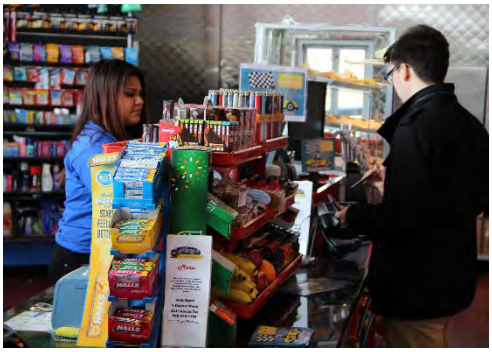
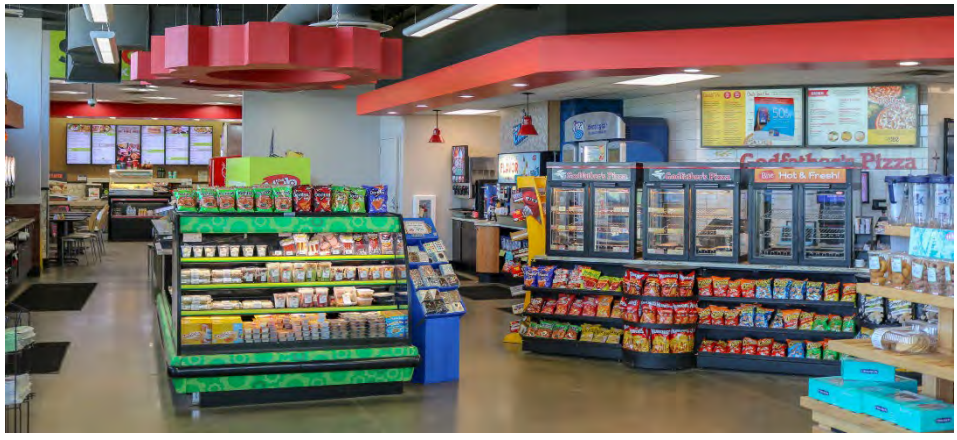
ENERGY STAR® Action Workbook for Convenience Stores

March 2020

NACS®

Advancing Convenience & Fuel Retailing

EPA United States Environmental Protection Agency

ENERGY STAR® is a U.S. Environmental Protection Agency program helping organizations and individuals fight climate change through superior energy efficiency. Learn more at energystar.gov/buildings.

About the Workbook

The United States (U.S.) Environmental Protection Agency's (EPA) ENERGY STAR® program and the National Association of Convenience Stores (NACS) collaborated to create this workbook.

This workbook serves as a resource and planning convenience store operators who want to increase the energy efficiency of their facilities by implementing realistic and cost-effective improvement projects. This workbook is freely available for download at www.convenience.org.

Disclaimer

All energy, water, and monetary savings listed in this document are based upon average savings for end users and are provided for educational purposes only. Actual savings will vary based on energy, water, and facility use, national weather data for your locality, energy prices, and other factors. Greenhouse gas (GHG) emissions are calculated based on emission factors reported to the U.S. EPA by the electric utility provider serving your ZIP Code. Data referenced in this document is provided by the U.S. EPA.

About NACS

NACS serves the global convenience and fuel retailing industry by providing industry knowledge, connections and advocacy to ensure the competitive viability of its members' businesses. NACS has 1,900 retailer and 1,800 supplier members from more than 50 countries. A member-driven organization, NACS is led by a 32-member Board of Directors.

In 2019, NACS partnered with ENERGY STAR to provide resources and tools to help convenience retailers maintain an energy plan that will not only save them money but help them tell the story to their customers.

NACS is partnering with EPA's ENERGY STAR to better serve members interests and endorses this ENERGY STAR Action Workbook for Convenience Stores. To learn more about NACS, visit www.convenience.org and to learn more about ENERGY STAR, visit www.energystar.gov. NACS has resources available to members on sustainability initiatives. Visit www.convenience.org/Sustainability.

Table of Contents

Introduction

Energy efficiency is the fastest, least expensive, and largest single solution for simultaneously saving energy and money while preventing GHG emissions. 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 worship, work, shop, play, and learn. These efforts have created jobs, saved money, and contributed to cleaner air and the protection of human health. These and future efficiency efforts are of critical importance, as commercial buildings are responsible for nearly 20 percent of all energy consumption in the U.S.

Energy is a controllable cost and every business has some degree of energy waste. Thousands of American building owners and operators use ENERGY STAR tools and resources to realize significant energy and dollar savings, while reducing GHG emissions. To help companies like yours, EPA developed this free, online "ENERGY STAR Action Workbook for Convenience Stores". Following the guidelines and suggestions in the Workbook will not only help you save money but will also enable you to showcase an environmental commitment to staff and customers.

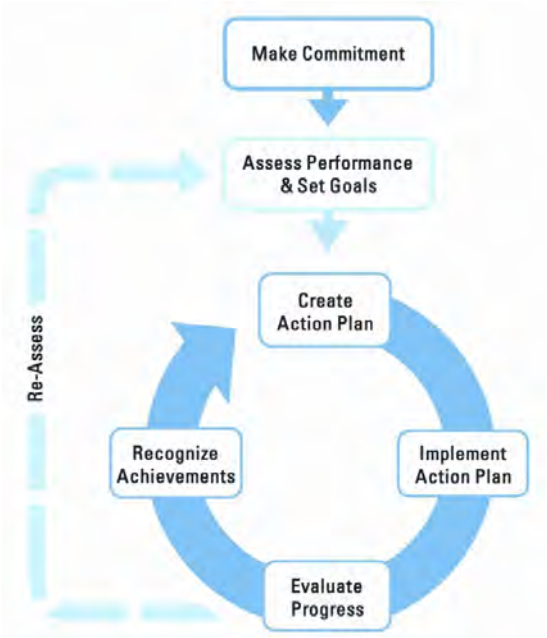


Figure 1: Guidelines for Energy Management

The U.S. convenience store industry, with more than 152,000 stores nationwide selling fuel, food and merchandise, serves 165 million customers daily—half of the U.S. population—and has sales that are 11% of total U.S. retail and foodservice sales. In recent years, convenience retailers have increasingly developed and incorporated business goals and KPIs that focus on energy management and sustainability into their strategic plans. Today, managing energy costs and continued awareness of the environment drive successful sustainability programs and practices at convenience stores. This guide, along with other resources available at www.convenience.org/sustainability, can help you make a plan, maintain momentum and thrive for the long term.

No matter how far along you are in managing energy for your business, the easy, simple ENERGY STAR approach can help you do more with your limited resources. To get on the path to savings, start by building your own energy plan. Use the seven steps of the ENERGY STAR Guidelines for Energy Management (Figure 1) in this Workbook to provide a strategic approach to improving your property's energy performance. The Guidelines are widely used and can help you build the most cost-effective and practical energy management system for your business.

This Workbook includes actions that will provide the greatest return on your time and expense investments. In fact, many require little or no investment at all. It is often the simple operation and maintenance improvements or behavioral changes that achieve some of the most significant savings.

This workbook also includes information on improving your property's water efficiency. Energy and water efficiency are closely tied together; efficient hot water use will decrease not only energy costs, but also water costs. As you move through this Workbook, you may want to consider water efficiency opportunities along with energy efficiency opportunities.

The Workbook Appendices highlighted throughout include more in-depth information on specific technical items as well as resources to help you look at savings opportunities throughout your store.

The ENERGY STAR Guidelines for Energy Management detailed in this workbook are summarized below. Let's get started!

Step 1: Make a Commitment to Saving Energy

- **Join ENERGY STAR as a partner** and make a commitment to better cost management.
- **Form a Dedicated Energy Team.** One dedicated individual or a group—large or small—can succeed.
- **Institute an Energy Policy** to provide the foundation for a successful program by setting performance goals and integrating energy management.

Step 2: Assess Performance

- **Benchmark, and start saving now!** Track and analyze performance using EPA's free, online Portfolio Manager®. This tool can help you set energy, water and waste management savings goals, and document achievements. Download the Portfolio Manager QuickStart guide to get started.
- **Sign up for free ENERGY STAR training** and find recorded webinars online.
- **Conduct a walk-through survey** guided by "Sure Savers" to implement low- and no-cost, reliable, low-risk actions that your store can take any time.
- **Host an Energy Treasure Hunt** where teams walk around the building looking for quick ways to save energy.
- **Consider an energy audit** to identify additional specific areas for improvement at your store.

Step 3: Set Goals

- **Determine the scope of your goals;** you can focus on a single property, or even specific company equipment and/or a section of the property for your efficiency project.
- **Set and prioritize goals**. Sample goals include 1) defined energy use reductions from baseline, 2) cost reductions, or 3) increased staff awareness of energy use and associated energy efficiency actions.

Step 4: Create an Action Plan

- **Define targets and projects.** Use Portfolio Manager or audit reports to compare your baseline with the goals you set. The gaps between goals and your baseline can help identify projects.

- **Determine roles and responsibilities** by identifying which steps of the action plan you will implement internally and for which you will need external help—such as contractors, consultants, utility representatives, etc.
- **Find funding for your projects.** Take stock of your financial situation to understand how much you can invest in projects, including what is on hand, what could be raised quickly, and what could be found elsewhere. Check on utility financial incentives, and possible "shared savings" contracting.

Step 5: Implement the Action Plan

- **Create a communication plan** to educate and motivate staff and customers regarding savings from efficiency and the benefits of proposed projects.
- **Manage the action plan.** Establish a consistent method for tracking the progress of your projects and maintenance tasks to make savings a "business as usual" activity.

Step 6: Evaluate Progress

- **Track progress**. Monitoring progress helps your business look toward the future, create new action plans, evaluate which elements of your plan worked and which didn't, and set new performance goals.
- **Measure results and verify savings** through a formal review of utility use data and the activities carried out to implement projects. Did the projects implemented through your plan help meet goals?
- **Review the action plan.** Which projects were most successful both in terms of business operations as well as saving money? What didn't work and what could have been done differently?

Step 7: Recognize Achievements

- **Provide internal recognition** at regular intervals for everyone who helped the project succeed.
- **Tell your story.** Share your success with your industry and community through traditional and social media.
- **Initiate a friendly, local competition** using the ENERGY STAR Guide to Energy Efficiency Competitions or the Treasure Hunt Resources. Challenge your Chamber of Commerce to host a competition.

Step 1. Make a Commitment

While the prospect of increasing the energy and water efficiency of your store may seem daunting at first, there are steps you can take to insulate your business against higher energy costs and reduce pollution. This Workbook will help you create an energy management program with simple, manageable steps you can implement incrementally. The first step of successful energy management is to make a commitment to saving. Begin by joining ENERGY STAR. The ENERGY STAR logo is recognized by more than 90 percent of the American public—you can use it to show your employees and customers that you are committed to saving energy and to environmental leadership.

Businesses seeing the financial returns from superior energy management continuously strive to improve performance. Their success is based on regularly assessing energy performance and implementing steps to save money. This section will explain:

- Why energy efficiency is key to your business goals.
- How to form a dedicated energy team.
- How to institute an energy policy.

1.1 Why Energy Efficiency is Key to Your Business Goals

"Energy efficiency? I don't have the time or ability!" you may think. Even with the realities of operating a convenience store with all the refrigeration/cooling systems and cooking equipment in a small footprint, store owners can save money and prevent pollution through efficiency. The savings you achieve through efficiency measures may very well "pay you back" for time invested. "I don't even own my building. What changes can I make and what impact will they have?" This workbook has information for tenants throughout. Whether your business owns its own property or is a tenant, you can assess savings associated with perspective upgrades by using ENERGY STAR tools and calculators.

The Bottom Line: Money and Your Business

Energy management and the purchase of ENERGY STAR certified products can reduce energy costs without compromising customer satisfaction. The money saved on your utility bills can be redirected to other business initiatives. Also consider costs that can be avoided by extending the useful life of your property (or properties) and equipment. With utility costs being the third-highest direct store operating expense, efforts to reduce energy and water use are a smart business investment. Utility costs average 3.6 percent of gross profit dollars, according to 2018 data from the NACS State of the Industry Report. Only labor (31.3 percent) and credit card fees (8.3 percent) are higher.

The People: Employee and Customer Satisfaction

NACS keeps a regular pulse on consumers and retailers through surveys. According to a December 2019 consumer survey, consumers say they want to shop at a store that reflects their values, especially as it pertains to the environment. Both your employees and customers appreciate your business's environmental responsibility. As you will learn in this Workbook, you can demonstrate environmental

responsibility through energy and water management while simultaneously improving the overall comfort and appearance of your store to be a model of energy efficiency in your community.

The Environment

ENERGY STAR certified properties are responsible for 35% fewer greenhouse gas emissions than their peers. You can help reduce energy related pollution as you save money. Even if your property has minimal square footage, you can still make a difference.

1.2 Form a Dedicated Energy Team

Your energy efficiency program should be tailored to your culture and resources. It is important to make the program your own by taking advantage of existing resources or individuals who may already be implementing efficiency efforts. Behind most successful programs lie a core team of dedicated individuals. For many stores, two to three people may be the team. Make ENERGY STAR a part of your team by using free ENERGY STAR technical trainings, materials, and resources.

Establish an Energy Team

People make decisions every day that affect energy use. The energy team executes energy management activities across different parts of your store and ensures integration with your business operations. In addition to planning and implementing specific projects, the team measures and tracks energy performance and communicates with management, employees, and other stakeholders.

Depending on the size of your store, consider including a representative from each operational area that significantly affects energy use.

Appoint an Energy Team Leader

Appointing an Energy Team Leader is a critical component of successful energy programs. The Energy Team Leader helps an organization achieve its goals by establishing energy performance as a core value. Specifically, the Energy Team Leader helps set goals, tracks progress, and promotes the energy management program.

The Energy Team Leader is not always an expert in energy, water, or technical systems. However, this person should understand (or be willing to learn) how energy management helps the organization achieve its financial and environmental goals and objectives. Depending on the size of your business, this can be a full-time position or in addition to other responsibilities. The Leader's duties can include:

- Coordinating and directing the overall energy program.
- Acting as the point of contact for senior management.
- Increasing the visibility of energy management within the organization.
- Drafting an Energy Policy.
- Assessing the potential value of improved energy management.
- Creating and leading the energy team.

- Securing enough resources to implement strategic energy management.
- Assuring accountability and commitment from core parts of the organization.
- Identifying opportunities for improvement and ensuring implementation (including staff training).
- Measuring, tracking, evaluating, and communicating results.
- Obtaining recognition for achievements.

1.3 Institute an Energy Policy

An energy policy provides the foundation for a successful program by setting performance goals and integrating energy management. It formalizes management support and articulates the organization's commitment to energy efficiency for employees, the community, and other stakeholders. Your energy policy should include:

- **An objective.** State a clear and measurable objective that reflects your store's commitment, culture, and priorities.
- **A chain-of-command.** Establish accountability and define roles in the organization; this will provide the authority for personnel to implement the energy management plan.
- **Provisions for evaluating and updating the policy.** Ensure continuous improvement and reflect changing needs and priorities.
- **Performance goals.** Provide a context for setting goals by linking energy goals to overall financial and environmental goals of the organization.

1.4 Review: Make a Commitment

Step 1 gave you the tools you need to begin your energy management program. You learned how this program will benefit your store, how to create an energy team, and how to institute an energy policy. Now it's time to turn your knowledge into action. Use the review steps below to measure your progress towards completing Step 1.

1. **Join ENERGY STAR**. This simple action takes a few minutes and sets you on your way with no obligation or cost. ENERGY STAR partners are plugged into the latest information on energy efficiency and have access to free technical support, case studies, and tools.

2. **Form your energy team:** To establish your energy program, form a dedicated energy team that includes an Energy Team Leader.

3. **Institute an energy policy:** Involve key people in policy development to formalize management support and articulate your commitment to energy efficiency that is understandable to employees and public alike.

Step 2. Assess Performance

According to the U.S. Census Bureau, the smaller a company is, the more it pays per employee in utility costs. Understanding how your property is currently using energy will help determine where to focus your team's efforts. Think about your property. Do you know the last time routine maintenance was performed on your Heating, Ventilation, and Air Conditioning (HVAC) system? Do employees always turn off lights and equipment that are not in use? The answers to questions such as these should start to give you an idea of places where energy consumption can be reduced. Step 2 will show you:

- Why "benchmarking" is important.
- How to benchmark using the EPA's ENERGY STAR Portfolio Manager tool.
- The benefits of a technical walkthrough to identify Sure Savers.
- How to host an Energy Treasure Hunt.
- When to consider an energy and/or water audit.

2.1 Understand Benchmarking

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 store's baseline energy and water consumption, track your building's energy and water use over time, track your waste, and see how your property compares to other similar buildings nationwide. Although convenience stores cannot receive a 1 – 100 ENERGY STAR score at this time, NACS and ENERGY STAR are working to gather data in order to create a score. Until that time, any convenience store will still be able to see how you compare to other stores with metrics such as Energy Use Intensity (EUI). Visit www.convenience.org/energystar for timely updates on this project.

By entering details about the property and consumption data for energy and water you can:

- Assess whole building energy performance.
- Track changes in energy, water, waste, GHG emissions, and energy costs over time.
- Track green power purchases.
- Create custom project reports.
- Share data with others.

To benchmark your property, Portfolio Manager performs calculations with your utility data, and adjusts for the weather in your area and for some specifics about the property systems, equipment, size, and building use. The core team can then use this information to set goals for your building's energy efficiency.

By tracking utilities in Portfolio Manager, ENERGY STAR has found that buildings that start with a lower ENERGY STAR score/higher energy use can achieve the greatest savings by benchmarking. In fact,

buildings starting with below average energy efficiency in 2008 (those with a score under 50) saved twice as much as those buildings that started above average. EPA prepared the DataTrends series to examine energy and water benchmarking trends for the thousands of buildings in Portfolio Manager. Dozens of city and state governments are also using Portfolio Manager for voluntary competitions and for mandatory GHG emissions tracking.

Benchmarking Steps

STEP 1 - GATHER DATA ABOUT YOUR PROPERTY

Before you can benchmark your property, you will need to gather information about your property and its energy and water consumption. ENERGY STAR has an online data collection worksheet that highlights the type of data you need to benchmark your store (there is a template for a worksheet for convenience stores with gas and those without gas services). A completed data collection worksheet will ensure you have all your information at hand when you set up your account. It is a good idea to nominate one member of your team to take the lead in setting up and managing the Portfolio Manager account (including data entry) to make sure there is a single point person for information management.

STEP 2 - SET UP YOUR PORTFOLIO MANAGER ACCOUNT

Once you have established an account and entered the information from your data collection worksheet, you will be able to generate custom reports, charts, and data sets that will help your core team analyze your property's energy and water consumption. For more detailed information, utilize ENERGY STAR Training resources. ENERGY STAR has Express Videos which show users how to create a property, add meter data, share building data, and generate reports in five-minute animated demonstrations.

Ideally, you should update your energy and water use data every month to ensure progress reports remain current and relevant. Additionally, you can view your property performance results, including annual energy use, water use, environmental performance, financial performance, GHG emissions, and track your waste. You can also compare performance during two different time periods.

In addition to displaying your property's performance results online, Portfolio Manager can adapt the data from your portfolio into ready-made reports. These reports can be useful for presenting project results to your energy team and employees, demonstrating the property's history of energy management to customers, and sharing your success with others.

ENERGY STAR CERTIFICATION

The data collected by NACS and ENERGY STAR in the energy and water use survey will be analyzed and used to create the opportunity in the future to receive a 1-100 ENERGY STAR score and to earn ENERGY STAR certification. Those properties that score at least a 75 on the 1 – 100 ENERGY STAR score may be eligible for ENERGY STAR Certification. Earning the ENERGY STAR indicates that your store is among the most efficient of its type in the United States. However, even though your store is not eligible now to receive the ENERGY STAR, you can realize and accurately track significant savings using Portfolio Manager. For example, just achieving a 20% improvement can provide substantial savings. And by using

metrics such as EUI, any convenience store can compare their energy use to others in Portfolio Manager.

2.2 Conduct a Technical Walkthrough and Implement Sure Savers

Now that you have a better understanding of your energy use, it's time to walk through your property. There are many reliable, low-risk actions that your team and employees can take—called Sure Savers; most are low- and no-cost opportunities to increase your energy (and often water) efficiency. This section includes the following subsections that describe the types of Sure Savers you may consider:

- Lighting (including parking lot lighting)
- Kitchen, Foodservice Equipment, and Refrigeration
- Heating, Ventilation, and Air Conditioning (HVAC)
- Building Envelope
- Office Equipment
- Water
- Electric Vehicle Charging
- Car Wash

Although most of the recommendations presented in in this section are low- or no-cost, some may require additional analysis to determine if they make financial sense for your business. You may consider obtaining a professional energy audit to identify further areas that can be improved.

Figure 2 illustrates the differing energy demands of small businesses. This chart is based on Energy Use Intensity (EUI) of some common business types. As you can see, the EUI is highest for those properties that rely on equipment for foodservice—like convenience stores; for those with quick service restaurants, the EUI is even higher. Many convenience stores combine both business models, which means that energy is a significant cost and a significant cost-saving opportunity for owners.

Significant Cost Savings are Possible

- 7-Eleven reduced its electricity use in stores almost 25 percent between 2008 and 2017.
- A study of 50 convenience stores in Minnesota found owners could save 21 percent on average through lighting, simple refrigeration upgrades, and other improvements. One store owner had an estimated 1.6-year payback period on the investments that was cut to 1.05 years after rebates from the local utility.
- Kwik Trip began aggressively chasing energy efficiency more than a decade ago. It estimated at the time that making new stores more energy efficient than its traditional store design might increase building costs by 10 percent, but any additional costs are quickly recovered through resulting energy savings.

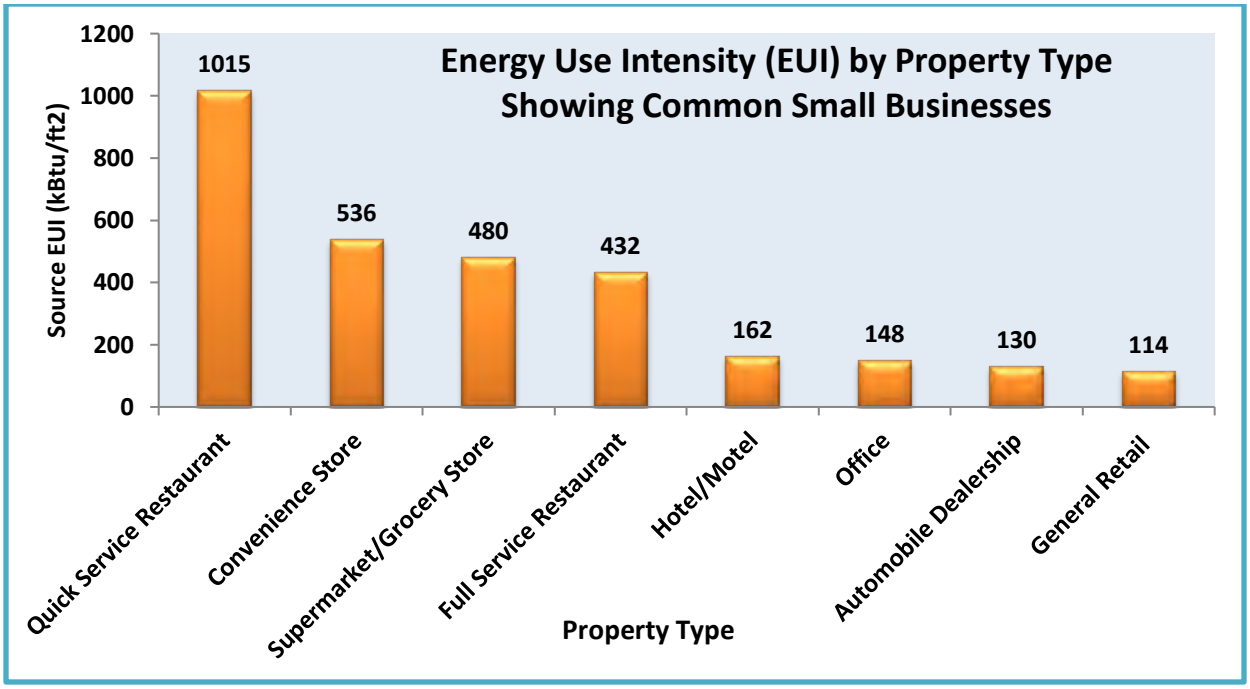


Figure 2. The Different Energy Demands of Small Business Types; Data from Commercial Building Energy Use Survey (CBECS 2013)

SURE SAVERS: LIGHTING

In addition to refrigeration, lighting is a large energy expenditure for convenience stores. In today's market, new energy-efficient, long-life bulbs offer many features at affordable prices. This diversity provides multiple options for currently installed lighting equipment and replacement of outdated bulbs represents energy saving opportunities. You can achieve energy savings in your lighting system through two main pathways: installing more efficient equipment (bulbs and/or fixtures) and changing the way you operate lighting. Since convenience stores may operate 24 hours a day or have outdoor lighting on through the night, some of the operations guidelines may not apply. *Appendix B.1: Lighting,* provides more information on each of the following guidelines suggestions:

- Replace incandescent bulbs with ENERGY STAR certified LEDs.
- Use a light meter (inexpensive models cost around $30) to assess if any areas are over-lit or under-lit, compared to requirements or design levels.
- Run the numbers for savings on LED upgrades for canopy and exterior lighting, signage, interior lighting, cooler case lighting, restrooms and backroom and storage areas.
- Evaluate the opportunity to upgrade to more energy-efficient lighting options everywhere:
  - Replace T12 fluorescents with T8s or T5s with electronic ballasts (removing obsolete magnetic ballasts) or consider the use of tubular LEDs (TLEDs).
  - Upgrade incandescent and CFL bulbs to dimmable LED.

  - Recycle/dispose of all fluorescent tubes/CFLS and magnetic ballasts properly at your lighting or building supply store.
  - Install LED exit signs which saves about 90 percent over an incandescent fixture's lighting electricity costs.
- Identify any lights that are routinely left on in unoccupied spaces (offices, restrooms, storage, etc.) Consider opportunities to use automated lighting controls:
  - Occupancy/motion sensors for low-traffic areas, especially restroom and storage.
  - Timers or daylight sensors to turn off exterior and parking lot lights during the day.
- 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 reflectors can be practically added to amplify existing lighting.
- Investigate the concept of solar tubes to bring in more outdoor light to your store.
- Consider de-lamping any areas where lights are too bright and cause. De-energize and/or remove ballasts of fluorescent fixtures that are not in use.
- Review ENERGY STAR product information, calculators and find local retailers and rebates; lighting, fans, and more lighting facts.

PARKING LOT/CANOPY LIGHTING: Parking lot and canopy lighting provide visibility for stores at night, highlight signage, and increase safety for customers. In addition to the general lighting guidance, the information below is specific to parking lot/canopy lighting.

- During the day, look for "day-burners," such as exterior and parking lot lighting that should only be on at night but have failed or dirty light sensors.
- Use energy efficient principles when designing and upgrading parking lot and canopy listing. The Department of Energy has a guide on Designing Parking Lot Lighting (2013). Although drafted for federal facilities, this guide provides detailed information on the design process, parking lot lighting design considerations, and lighting controls.
- If upgrading your exterior lighting, consider "shielded" fixtures to direct the light where needed and reduce "light pollution."

Numerous Retailers Switch to Efficient Lighting

- Iowa-based Casey's launched a four-year transition plan to LEDs in 2016. They estimate that it will cut energy use in half, cutting its electricity consumption by an amount equivalent to 2.6 homes annually per store.
- 7-Eleven has an aggressive program to transition the lighting in its stores to LED as part of its cost saving and CO2 reduction goals. By the end of 2017, more than 6,000 stores converted from fluorescent to LED, saving an estimated 38,756 kWh per store.
- Over the past five to six years, QuikTrip based in Tulsa, Oklahoma, has retrofitted all stores to LED lighting. Its "QuikTrip Environmental Sustainability Review" for 2019 reports that 100 percent of its outdoor lighting and 95 percent of its indoor lighting is LED.
- Atlanta-headquarterd RaceTrac Petroleum, Inc. was one of the first convenience retailers to embrace LED technology beginning with its outdoor lights.
- When Kwik Trip in Wisconsin began transitioning to LED lights for its canopy lights back in 2011, they estimated that they saved almost $4,000 per store per year.
- Kum & Go, a convenience store chain located in the Midwestern United States, uses only LED lighting in its new stores and it is currently transitioning its existing stores.
- Some convenience retailers, including Pennsylvania-based Rutter's, have installed solar tubes that channel outdoor sunlight to the interior of stores. "While we can't tie sales directly to additional daylight, studies show that natural light has a positive effect on a person's mood," explained one Rutter's executive. "We believe there is tangible benefit to our customers and to our award-winning customer service by providing more natural light inside our stores."

Sure Savers: Kitchen, Foodservice Equipment, and Refrigeration

Convenience stores with restaurants may use up to ten times more energy per square foot than other commercial buildings, so efficient foodservice equipment and good management practice are crucial to savings. *Appendix B.2* provides more information on each of the following guidelines suggestions:

- If you need to purchase new foodservice equipment, verify that it is ENERGY STAR certified commercial food service equipment.
- Purchase ENERGY STAR certified products such as vending machines, and water coolers for your store.
- ENERGY STAR certified commercial coffee brewers offer as much as 35% energy savings and better temperature uniformity compared to conventional models, due to efficient electrical systems and well-insulated tanks.
- If possible, be sure heating equipment is not near cooling equipment, and turn it off when possible.
- 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 range hoods and exhaust fans are only running when the range is being used.
- Ensure that unused appliances are unplugged or on a power strip that is shut off.
- Determine if low-flow pre-rinse spray valves can be installed.
- Identify and assess opportunities to install variable frequency drives (VFDs) on kitchen hoods.
- Feed people not landfills: Visit EPA's Sustainable Management of Food for webinars, tools and tips, including composting and donation. Track materials management and recycling in Portfolio Manager.

REFRIGERATION: For some convenience stores, refrigeration may use up to 40 percent of the property's total energy. That's why it's important to maintain refrigeration systems and to learn about the multitude of energy efficiency options available in today's market. Better technology and improved practices can be applied to all types of refrigeration equipment, such as reach-in, walk-in, and under the counter refrigerators/freezers, as well as a multitude of food/drink storage units and display cases. The following tips are designed to help your store improve the efficiency of its refrigeration, thereby reducing operating costs, saving energy, and preventing pollution. *Appendix B.2* provides more information on each of the following guidelines suggestions:

QuikTrip Saves Energy with Refrigeration

Tulsa, Oklahoma-based QuikTrip achieved significant savings by switching some stores to a parallel-rack refrigeration system. The parallel-rack system uses two or more refrigeration compressors for cooling. When greater cooling needs exist, the system runs multiple compressors. When less cooling is needed, only one compressor is used, switching between the compressors to avoid overtaxing any of them.

- Your refrigeration is designed for worst-case temperatures in your climate. Floating head and suction pressure controls react to actual ambient temperatures to maintain necessary temperatures for savings.
- Regularly check the effectiveness of refrigerated case seals and consider automatic door closers.
- Identify worn and/or leaky door seals/gaskets on refrigerators and freezers. Close the door on a dollar bill or piece of paper, and if it is easily pulled out, replace the gasket. Many websites have "DIY" videos and instructions. Some replacement gaskets claim to be "universal", but it is best to purchase using the appliance brand and model number. Regularly clean the gasket with soapy water to keep it free of debris.
- Electronically commutated motors (ECMs) can be programmed and potentially remote-controlled by an Energy Management System (EMS) to speed or slow motors based on cooling needs, offering significant savings over evaporator fans in walk-in coolers and over split capacitor and shaded-pole motors in refrigerated cases.
- Consider installing anti-sweat controls to monitor both humidity and temperature to activate heaters in cooler and freezer doors only when needed to prevent condensation.

- Consider installing defrost controls which use sensors to intelligently sense when evaporator coils need defrosting, and only then consume the energy necessary to perform that operation.
- Install strip curtains and keep condenser and evaporator coils clean.
- Alcohol and soft drinks don't have to be chilled to the lower temperatures required for perishable foods.
- Check whether refrigerated case lighting is LED.

SURE SAVERS: HEATING VENTILATION AND AIR CONDITIONING (HVAC)

HVAC systems represent a significant portion of the utility bills for all businesses. Since convenience stores may operate continuously, and have customers coming in and out throughout the day, efficient heating and cooling systems can provide savings. It is important to control and monitor your energy use to reach optimal energy efficiency and maximum savings. Review the following items to consider each HVAC suggestion as it may apply to your property, then see *Appendix B.3: Heating, Ventilation, and Air Conditioning (HVAC)*, for more information.

- Keep windows and exterior doors closed while running the HVAC in line with your store's operations.
- Install a programmable thermostat to control the HVAC system. Depending on outside temperature, programming can be set to turn off the HVAC 15-30 minutes before space use ends for additional savings.
- Ensure that HVAC system components are maintained regularly. If not by qualified staff, then consider an annual maintenance contract to "tune-up" HVAC, both pre-heating and pre-cooling seasons.
- Qualified staff or a professional should implement the full HVAC maintenance list; however, everyone can help remember to:
  - Replace filters on a regular schedule; monthly during heating/cooling season. Ask your facility staff how often filters are changed.
  - Ensure free airflow to and from supply/return registers (clear furniture, books, papers, or other materials).
  - Ensure that electronics and heat sources are located away from thermostats.
  - Identify and prevent any instances of simultaneous heating and cooling.
- Have a plan for HVAC failure on the hottest/coldest day of the year. Know the anticipated useful life of your current system, have your contractor "right-size" the new HVAC system to account for your new level of efficiency and reduced demand so you do not pay more for a larger system than you need.
- Determine if you already have or need professional savings estimates for HVAC Economizers, Advanced Digital Economizer Controls (ADECs), Demand Control Ventilation (DCV), and Enhanced Ventilation Controls (ECVs).
- Also ask about Variable Speed Drives (VSDs) to optimize the speed of motors in pumps and fans.

- See ENERGY STAR HVAC products and resources and evaluate the savings for higher SEER/IEER Rated equipment for new installations and retrofits.

Sure Savers: Building Envelope

Your store's "envelope" or "shell" includes windows, walls, a roof, and insulation. Addressing leaks that allow unwanted air infiltration into the building envelope can often eliminate a major energy drain. Outside air can enter a building through a variety of places, most commonly the windows, doors, walls, and roof. At the same time, cooled or heated air will be lost. Fresh outdoor air in the building is good, but only as controlled ventilation, not as accidental infiltration. Investigate the following options to improve your building envelope, then review *Appendix B.4: Building Envelope Assessment Guidance* for more information. If you find leaks that are easy to fix, utilize the ENERGY STAR resources on Sealing and Insulating.

- Check exterior walls for leaking and proper insulation.
- Minimize as much unconditioned air flow through doors as possible.
- Ensure the roof is in good condition; consider whether a "green roof" or "cool roof" makes sense for your business. Depending on "street view" aesthetics, and safety concerns, and other issues, consider that white, reflective paint can significantly reduce heat gain and even extend the life of some roofing. Don't forget to tell customers that it is up there if they can't see it!
- Inspect the condition of and replace windows and window shadings, if needed. If new windows must be purchased, consider the incremental costs and savings of high-efficiency windows – which will cost more but will save more in energy and heating/cooling costs.
- With "outside-to-inside" visibility in mind, consider installation of solar film on east and west windows to block summer heat gain for dollar savings, customer and employee comfort. Depending on your climate, you may even need to block winter heat gain on the south side in very warm climates.

Sure Savers: Office Equipment

Although convenience stores will likely see the greatest opportunities for efficiency in lighting, HVAC, and refrigeration, increased office equipment efficiency brings energy and cost savings. As you look to replacing existing products or purchasing new products, use ENERGY STAR certified products to reduce energy costs without compromising quality. ENERGY STAR has resources on how to modify procurement language, educate vendors and personnel, choose ENERGY STAR products to purchase, and estimate the potential money and energy savings from purchasing ENERGY STAR products.

The ENERGY STAR mark indicates the most efficient computers, printers, copiers, televisions, windows, thermostats, ceiling fans, and other appliances and equipment. Evaluating your office equipment use will help your business realize energy and monetary savings. More information can be found in *Appendix B.5: Office Equipment Guidance*.

- Always buy ENERGY STAR certified products for your business.
- Place computers (CPU, hard drive, etc.) into a low power "sleep mode" after a designated period of inactivity.
- Utilize smart power strips.
- Develop an education and/or training program to encourage energy conservation.
- Print double sided pages; much more energy is used in the manufacturing and distributing of paper than the actual printing at your store.

Why Is Reducing Waste Important?

Although this workbook focuses mainly on energy and water management, waste reduction can save you money and reduce your environmental impact. Tracking waste is an important step in reducing it. Here are some ways to cut down on waste:

- Don't print out a file unless it's necessary and print double-sided if possible.
- Reuse file folders and envelopes by placing a new label over the old one.
- Bring a reusable water bottle and/or mug to work instead of using disposables.
- Bring your lunch to work in a reusable container.
- Recycle any paper, plastic, glass, aluminum, or other recyclable materials you use.

Keep America Beautiful (KAB) and NACS offer resources that can help retailers keep their stores and communities clean. The joint *Guide to Reducing Litter, Managing Trash and Encourage Recycling at Convenience Stores* provides quick and easy tips for convenience stores to improve customers' experience, help the environment and ultimately enhance their reputation and bottom line.

Sure Savers: Water—Hot and Cold

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 store consumes, the more 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. More information on the recommended actions below is available in *Appendix B.6: WaterSense and Water Guidance*.

- Conduct a water assessment to identify major water uses within the property.
- Purchase WaterSense certified products when replacing fixtures such as faucets, toilets, and urinals. For larger facilities with showers, install WaterSense certified showerheads.
- Purchase an ENERGY STAR certified water heater when buying a new water heater.
- Insulate water heaters.
- Find and fix leaks.
- Set water temperatures only as hot as needed.
- Optimize the amount of water used in heating and cooling systems.
- Practice water-efficient landscaping and reduce irrigation needs.

How the Industry Reduces Outdoor Water Use

- Maryland-based Royal Farms uses only native plants that can thrive relying only on local rainfall. It eliminates the need for irrigation.
- QuikTrip, based in Tulsa-Oklahoma, has smart water controllers monitoring its irrigation needs at more than 500 of its more than 800 stores. Replacing simple timers to turn sprinklers on and off, the new irrigation controllers use weather data to adjust watering needs based on predicted temperatures and rainfall. The investment has reduced QuikTrip's water use by 100 million gallons and saved $580,000 each year.
- Kum & Go, headquartered in Iowa, uses irrigation controls to reduce its water use.
- Wawa, based in Media, Pennsylvania, uses a variety of strategies, including drip irrigation, to reduce its water use. Drip irrigation provides water directly to individual plants rather than watering an entire landscaped area.

Car Wash

For those convenience stores that include car washes, consider the following:

- Since drying systems use the most energy in the wash tunnel, look for energy-efficient drying systems.
- Consider using variable frequency drives (VFD) that control the amount of electricity heavy equipment uses by regulating motor speed and power surges—this is most important for dryers and blowers.
- Keep dryers clean and clear of debris and perform a daily inspection of the dryer to remove debris and any build up.
- Use LED lights for interior and exterior lighting—they save electricity and do not need to be replaced as often.

- To measure and manage car wash water use, add a car wash-specific water meter that is separate from the rest of your store.
- Consider water reclamation. These systems can separate car wash sediment (dirt, grease, oil and chemicals) from the water to make it reusable—increasing water efficiency at the operation. According to the International Car Wash Association, almost all car washes being built today include water recycling technology. It is another water-saving, environmental benefit that not many customers understand.
- The International Carwash Association manages a WaterSavers program to encourage and promote water-efficient and best water management practices for car washes. It includes a logo and other marketing materials to promote WaterSavers members and an online database so that customers can find car washes meeting its criteria.

Electric Vehicle Supply Equipment (EVSE)

- There are three major categories of electric vehicle chargers, based on the maximum amount of power the charger provides to the battery from the grid: Level 1, Level 2 and DC Fast Charge.
- Convenience stores will be interested in DC Fast Charge models. For more information and equipment sources, see the websites of several members of the Electric Vehicle Charging Association.
- Consider separately metering the charger's energy use to better measure and manage how much electricity is used to charge vehicles.
- Find more general information at the Electric Vehicle Charging Association.

2.3 Host a Treasure Hunt

In addition to walking through your property to identify Sure Savers, you may want to consider hosting an Energy Treasure Hunt at your business where teams walk around a building looking for quick ways to save energy which can add up to big savings. Hundreds of organizations have used Energy Treasure Hunts to reduce their facilities' energy use by 7 to 15 percent. Treasure Hunts focus on quick fixes with a short payback period. Many improvements can be made immediately and without significant expenditures or capital investments. These events can strike a positive, optimistic tone, focusing on outcomes and improving day-to-day operations—and can involve a large team to motivate and educate employees. ENERGY STAR has created a Commercial Buildings Treasure Hunt guide to walk you through

the basics of planning and implementing a 1 – 2 day Treasure Hunt; a convenience store-specific Treasure Hunt map is available.

2.4 Consider an Audit

After you and your team have gone through the Sure Savers and potentially conducted an Energy Treasure Hunt, an audit can help identify additional specific areas for improvement at your store. 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. For more information on energy audits, including the types of audits available, how to decide when one may be needed, and information on managing the process, see *Appendix C: Energy Audits and Professional Assistance*.

There are different types of audits that can highlight energy use at your property in different levels of detail, from "walk through" to "investment grade". Depending on the level of detail you desire, your current staff or a member of your core energy team could perform an audit. In other cases, your store may need to hire a professional auditor. Usually professional audits make sense for larger properties with longer operating hours and more complex systems. For larger or more complex properties, an audit can identify ways to enhance the energy efficiency of current equipment, in addition to technically viable and cost-effective investment projects that will reduce property energy use and operating costs.

Ask your utility and your state energy office if they offer free or low-cost energy audits, financial incentives, or other technical support. See if there is an ENERGY STAR Service and Product Provider (SPP) in your area by visiting the ENERGY STAR SPP Directory. Some things to consider when looking at an audit include:

- Sometimes the full cost of a professional investment grade audit will be free if you agree to implement the auditor's recommendations.
- Another variation is called shared savings, in which there is no initial cost with the new equipment paid at a pre-agreed rate from monthly savings.
- If affordable professional services are not available, you can still achieve big savings with free ENERGY STAR tools, training, and technical support.

2.5 Review: Assess Performance

Step 2 gave you the tools and ideas you need to assess your property's energy and water performance. You learned how to benchmark your property's energy and water consumption using the ENERGY STAR Portfolio Manager tool and walk through your property to identify Sure Savers. You can use the review list below to measure your progress towards completing Step 2.

1. **Gather and track data:** Use Portfolio Manager to benchmark your energy and water consumption by entering a year's worth of utility data.
2. **Analyze your data:** Accurately assess your current energy and water use, track it over time, and compare your energy consumption to that of like properties with Portfolio Manager.
3. **Conduct a walk-through survey:** Walk through your store to identify and implement Sure Savers.
4. **Host an Energy Treasure Hunt:** Involve your team in finding more opportunities to save energy.
5. **Consider an audit:** Determine if a professional audit would be beneficial, and if so, choose the type of audit you'd like and find funding to cover its expense.

Step 3. Set Goals

By this point you've created an energy team, become more familiar with your property's energy consumption, benchmarked your property using Portfolio Manager, and identified Sure Savers. Now it's time to evaluate your priorities and set goals. Performance goals are critical for understanding intended results, developing effective strategies, and reaping financial gains.

When setting goals, it is important to start by identifying the scope of the goal, especially to determine if it is organization-wide or specific to one store. Your team should look at short- and long-term goals to see what work is most feasible at different time periods. Communicating and posting goals can also motivate the efforts of staff throughout your store.

Step 3 will walk you through:

- How to identify the scope of your energy program goals.
- The steps of setting goals.
- How to prioritize goals.

3.1 Determine the Scope of Your Goals

The size of your organization and time periods necessary for the completion of each goal can help you determine the scope of your goals. For most businesses, the goals will focus on a single store; you can even set goals for a section of the store if that provides a better fit. What is most important is that the goals you set match your needs.

Some helpful methods to determine the savings potential associated with a goal may include:

- **Benchmarking.** Benchmark the energy use of your property to provide a yard stick for evaluating opportunity when enough data is available to show trends in energy use—this can be of use for both short-term and longer-term goals. Portfolio Manager includes sections specifically for planning and goal setting.
- **Evaluating past projects and best practices.** Evaluate past projects and best practices over time to see what works for your property and organizational culture.
- **Reviewing technical assessments and audits (if applicable).** Identify the opportunities to reduce energy use identified during walkthroughs and audits of your property to serve as a basis for potential improvement.
- **Comparing goals of similar convenience stores.** Review the performance goals of other stores which have gone through a similar process. If you have colleagues who are undertaking similar work, see if they will share their goals and any lessons learned from their own projects. You can ask your local Chamber of Commerce, other business franchisees, or at industry meetings to see if your peers have case studies/lessons learned.

3.2 Set Goals

Once your energy team has set the scope of your goals and estimated the potential for improvement, you can put them into writing. Some examples of specific energy management goals include:

- **Defined energy (and water) use reduction.** Goals are presented in terms of a specific quantity or percentage decrease in use, such as a 10 percent reduction measured in Portfolio Manager.
- **Cost reduction.** A savings of a certain percentage on utility bills. Note that this goal is easier to measure on an annual basis due to changing energy use over the course of the year. Portfolio Manager uses weather-normalized data which ensures accurate reports.
- **Increased staff and customer awareness of energy and water efficiency.** This can be through marketing to your customers or highlighting your efficiency efforts to staff.

3.3 Prioritize Your Goals

Once your team has set goals, you will need to prioritize them. You should include the managers and staff at your store throughout this process to evaluate how well the proposed project aligns with your business's priorities and how far it moves the team toward accomplishing its goals. Prioritizing your goals can also help your team determine what may be feasibly accomplished in a specific time—such as over the next year versus over the next five years.

Another important thing to consider when setting goals is cost. ENERGY STAR can help guide your financial decisions, calculate the cost of delay, and help you meet your performance goals through the Cash Flow Opportunity (CFO) Calculator. Additionally, you can use the ENERGY STAR Building Upgrade Value Calculator (BUVC) to analyze the financial value of efficiency-related capital investments. Finally, ENERGY STAR also has online savings calculators for ENERGY STAR certified products.

3.4 Review: Set Goals

Step 3 walked you through the process of setting goals for your program prior to creating an action plan. These goals will be overall markers for achievement and by creating an action plan in the next step, you can choose specific projects to support these goals. Measure your progress towards completing Step 3.

1. **Determine scope:** Your energy team can consider the scope of overall program goals you would like to set. It is important for your team to sit down with other decision makers and evaluate how well the goals align with your store's priorities.
2. **Set goals:** Work within your store to determine which goals will best meet your needs.
3. **Prioritize project goals:** Rank which goals are most important for initial implementation compared to potentially longer-term goals.
4. **Think big:** Consider an "aspirational goal" such as being able to communicate a message to customers a year from now: *Doing our part for environmental protection through 25% energy and water reductions and emissions savings.*

Step 4. Create an Action Plan

> "It's tough to compete against someone in the same business over the long-haul when their store is the same size and their electric bill is half as big."
>
> - Convenience Store Executive

Once your team has assessed the current energy use of your property by benchmarking in Portfolio Manager, walked through the building and implemented Sure Savers, and has set goals for improved efficiency, it is time to create an action plan to help meet your goals. This plan should outline selected projects and activities ready for implementation. Be sure to update your action plan regularly to highlight achievements, changes to the property, and/or shifting priorities and goals.

Include the different staff when creating this plan to take all perspectives into account. This will help with employee buy-in and most likely improve the implementation process if your staff has played a role in plan development.

Step 4 defines the three key activities in creating an action plan:

- How to define projects.
- What to consider when you determine roles and resources.
- How to find funding for planned work.

4.1 Define Projects and Timelines for Implementation

Based on the work accomplished in Steps 1 – 3, you should have a clear picture of the energy and water use as well as the requirements of your property. 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. First, look at reports from Portfolio Manager or any audits and see how your energy benchmark compares with the goals you have set for your property. Based on the gaps between your goals and your current situation, you can then identify what you need to do to meet your goals. This may be as easy as switching from incandescent light bulbs to LEDs, or a more complex project like replacing your heating system.

Once the steps for each project have been defined, you can now set timelines for project implementation. Creating concrete timelines (sometimes referred to as targets) allows you to have a clear idea of when accomplish a specific section of the action plan. The timelines should include milestones, so it is clear when certain projects need to be complete. Establishing a tracking system to monitor the progress of your projects helps you meet your targets.

4.2 Determine Roles and Responsibilities

For larger teams, you should ensure that everyone is clear on what aspects of the action plan they should focus on and at what level. It is important to identify which steps of the action plan you

implement internally and for which you will need external help—such as contractors, consultants, utility representatives, etc.

4.3 Determine Resources and Find Funds

After you and your energy team determine which projects to undertake in the action plan and the order in which to implement them, you can estimate the cost for each item (both in terms of capital outlay as well as human resources), and then look at how best to fund those projects. This is a key component of any energy action plan. Knowing what funding is currently on hand, what could be raised quickly, and what could potentially be found elsewhere is important when deciding which projects are feasible and when to do them. It is a good practice to look at how funding availability fits into your overall property management plan.

If your team is focusing on smaller scale energy efficiency upgrades, you may be able to use funding from the general operations and maintenance budget, from funds already saved through efficiency, or from small fundraising projects. For projects that may require a larger investment, there are many traditional and nontraditional financial resources available. It is important for your team's financial representative to look closely at the best investments for your store over time. For more information on the different ways to finance upgrades, see *Appendix D: Project Financing*.

In addition to finding funding, consider updating your purchasing/procurement language and policies to specify purchasing EPA's ENERGY STAR, WaterSense® and Safer Choice® labeled products when applicable.

4.4 Review: Create an Action Plan

Step 4 gave you information to help you complete the tasks below—use this list to measure your progress towards completing Step 4.

1. **Define technical steps and targets:** Based on your energy assessments, select projects to meet program goals and set targets for completion.
2. **Determine roles and responsibilities:** Once your targets are set, identify who is responsible for implementation for those projects.
3. **Determine if projects require funding and how best to secure it:** Cost-effective funding is key to a good return-on-investment. Savings from Sure Savers may fund some projects, while others may require more significant capital investment.

Step 5. Implement the Action Plan

Having a regularly updated plan in place to manage your projects and track progress will help your team stay organized. In your tracking system, you should record not only the human, financial, and physical resources committed to projects that are currently being implemented, but also routine maintenance activities for existing infrastructure. Keeping track of what's happening with both new and existing infrastructure and equipment will ensure that your business gets the most value out of the resources you have invested in your property.

The size and complexity of the projects your store undertakes 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 lamps with LEDs, team members could complete the work. A more complex project, however, such as designing and replacing your store's entire lighting system, will most likely require the help of someone who has experience managing that type of project, such as an energy services company (ESCO) or a private energy contractor. For any larger project using a contractor, your team should keep a record of the contractor's progress, and periodically review how their progress compares to the tentative schedule in the contract. For more information on issuing a Request for Proposal, choosing a contractor, negotiating bids, and working with contractors, see *Appendix E*.

As you work to implement the action plan, communication and awareness is very important. Step 5 will explain:

- How to create a communication plan.
- Why you should raise awareness of your action plan.
- How to effectively manage projects and keep them on time and on budget.

5.1 Create a Communication Plan

Although your team may be ready to move forward with project implementation, it is important to create awareness, educate, and motivate your staff regarding energy and water efficiency and the benefits of the proposed projects. This will help them understand the goals of each project and give them notice of possible changes to the property. The communications plan does not need to be complex—it could even be a one-page plan—but should keep everyone in your store up to date on what the team has done, where projects currently stand, and what still needs to be accomplished. It is helpful to provide timelines and other visual highlights of project milestones, planned deliverables, and progress. The ENERGY STAR Communications Toolkit includes many resources that can help you create and implement a communication plan.

5.2 Raise Awareness of the Action Plan

The implementation of energy efficient practices and policies should involve individuals at all levels of your store. Effective programs make employees, managers, and other key stakeholders aware of energy

performance goals, the projects undertaken to reach those goals, as well as roles in project implementation.

Making people aware of how their everyday actions and activities at home and at work affect energy and water use and impact the environment is a key step to implementing your action plan. Increasing overall awareness can be an effective way to gain greater support for your energy program and its goals. Store staff may have a limited understanding of energy generation, energy, and water use and their impact on the organization and environment. Targeted efforts designed to increase awareness of program goals can help build support for each project. Staff members who are not directly involved with the costs of their business's energy and water use may not be aware of how these costs affect the bottom line. Making managers aware of these impacts is key to building support.

By investing time in ENERGY STAR free training and educational content, you can better implement your action plan to increase your overall organizational capacity. Informed employees are more likely to contribute ideas, operate equipment properly, and follow procedures, helping to guarantee that capital investments in energy and water improvements will pay off.

5.3 Manage the Plan—Implement Efficiency Projects

If you or other members of your store are implementing the projects to meet defined goals, your management of those tasks will consist of recording resources and deadlines, as opposed to micro-managing the project. Some projects may be grouped together to make them easier to accomplish, while others may be larger stand-alone work. To best manage the project(s), make sure to keep track of:

- **Who** is responsible for implementing each project.
- **Where** (and in how many places) on your property the project upgrades should be implemented.
- **What** your energy use benchmark was pre-project and how it has improved by using ENERGY STAR Portfolio Manager.
- **What** financial resources are devoted to each project and how they are being spent.
- **When** the project will be completed.
- **How** to best motivate your staff to initially engage them and keep them involved throughout the project(s). This can be internal competitions, recognition, financial bonuses/prizes, or overall messaging on the financial and environmental benefits of this work.

Where you choose to store this information is up to you and your team; however, you should make sure that the project records are kept together to avoid fragmenting your knowledge of the progress made in your property's efficiency improvements.

As you continue to invest in efficiency projects, the maintenance required at your store will also continue. All equipment—even new energy efficient equipment—will need regular maintenance to perform at peak levels and to achieve optimal equipment life. Managing your store's maintenance is an important part of making sure that the project upgrades continue to benefit the property. Keep consolidated and well-organized records of the maintenance tasks for your property, the dates by which they must be performed, and verification that they were performed by those dates.

5.4 Review: Implement the Action Plan

In Step 5 you focused on implementing the action plan—both by selecting projects to meet goals and by communicating the work to your staff. Use the checklist below to measure your progress:

1. **Create a communication plan:** Use freely available ENERGY STAR information, tools, calculators, and materials to enhance your ability to "do it yourself" using onsite time and talents, and to help the staff understand when professional assistance is necessary.
2. **Raise awareness of the action plan:** Educate your staff on energy efficiency measures and practices for your property.
3. **Manage your action plan:** Establish a consistent method for tracking the progress of your projects and maintenance tasks.
4. **If larger improvements are needed, select a contractor and negotiate a contract:** Select a contractor with whom your business will be able to cooperate, and negotiate a contract that cost-effectively implements your projects. This is the time to hire a contractor if it is deemed necessary, negotiate based on competing bids.

Step 6. Evaluate Progress

After you have implemented projects, it is important to evaluate their progress through a formal review of both energy and water use data as well as the activities carried out as they compare to your performance goals. Monitoring progress can help your store look toward the future and create new action plans, evaluate which elements of your action plan worked and which didn't, and set new performance goals for your program. Custom reporting features in Portfolio Manager can help monitor progress of projects and goals, provide a clear picture of where your property is in relation to those goals, and set new performance goals. Step 6 describes:

- How to track your progress.
- Why and how to measure the results of your work.
- When to review and modify your action plan.

6.1 Track Progress

It is good practice to continuously assess performance as your property implements projects. Update Portfolio Manager each month to track changes in your property's energy and water consumption, cost savings and, correspondingly, GHG emissions reductions. Has your store met program goals? In addition, talk to your staff and customers about energy and water issues to see if they have noticed any changes in comfort, aesthetics, or usability due to project upgrades and see what feedback and ideas they may have for future projects. This can also help highlight which projects provided the biggest impact not only on your bottom line, but also for employee and customer satisfaction.

6.2 Measure Results and Verify Savings

As you implement each project in your action plan, it is good practice to incorporate a means to measure and verify the savings. Once a project is complete, your team can conduct measurement and verification, which includes a formal review of use data and the activities carried out to implement the project. Did projects help meet program goals? The results of this analysis will provide feedback on how new equipment is operating, the return on investment, and what new program goals can be set. The results may also highlight areas where further investment is warranted. Portfolio Manager is designed to make this type of analysis easy and effective.

How to Measure and Verify Savings

To measure how much energy and water your project has saved, you will need your Portfolio Manager energy and water consumption data pre-upgrade. Portfolio Manager can run different reports based on the project information entered, such as the amount of energy and water saved, reduced GHG emissions, dollars saved, and others. Your team can also generate a Statement of Energy Performance (SEP) report from the tool at any time. The SEP report communicates information about your property's energy performance that is concise and clear.

6.3 Review the Action Plan

After reviewing your results and overall performance data, it is wise to then look at what factors affected these results and the effectiveness of your action plan. Which projects were most successful both in terms of business operations as well as saving energy? Which ones were poorly received by staff and/or did not result in measurable savings? Some helpful steps in reviewing your action plan may include:

- **Getting feedback** from the energy team, staff, and customers.
- **Gauging awareness** to assess changes in employee understanding of energy issues.
- **Quantifying the side benefits** of your work including increased employee comfort, productivity improvement, impact on sales, and better public relations.

Taking the time to review the action plan and then taking steps to improve it can yield strong results for future initiatives at your property.

6.4 Review: Evaluate Progress

In Step 6 you reviewed the importance of project evaluation through tracking progress, measuring and verifying savings, and reviewing your action plan. It is important to understand the outcome of your team's labor to ensure that you are making the most of your investment. You can use the checklist below to measure your progress towards completing Step 6.

1. **Track progress:** Observe the benefits of your investments. Have discussions with your staff on how the improvements are affecting property comfort and usability in addition to the savings and emissions reductions.
2. **Measure and verify your savings:** Generate reports within Portfolio Manager and use the tool to assess the effect of the project on your property's energy and water consumption over time and to help you plan continuing improvement.
3. **Review your action plan:** Go through what worked and what didn't work so you can better plan your next project. Solicit feedback from staff and customers to get a fuller picture of the project.

Step 7. Recognize Achievements

After your team has completed Steps 1 – 6, you may think you're finished with the process of improving efficiency. Indeed, most of the hard work is done! All that is left to do is to receive appreciation and recognition for your team's efforts and encourage others to practice energy and water efficiency with your story.

Providing and seeking recognition for your achievements sustains momentum and supports your efficiency program; this includes acknowledging the individuals who helped your store achieve these results. Recognition can motivate employees and bring positive exposure to your energy and water management program. You and everyone who is part of your success can congratulate each other publically through reciprocal promotion. Recognition from outside sources validates the importance of your work to both internal and external stakeholders, and provides positive exposure for the organization as a whole.

Step 7 provides guidance on:

- How to recognize achievements internally.
- How to solicit external recognition.

7.1 Provide Internal Recognition

Recognizing the accomplishments of the energy team as well as your employees sustains momentum for your efficiency program. Rewarding particular efforts defines what constitutes success and motivates your employees through increased job satisfaction. To provide recognition, first determine recognition levels, then establish recognition criteria, and determine recognition.

Determine Recognition Levels

The decision about who should receive recognition in your organization will likely be shaped by the purpose for providing recognition and your organizational culture. Common recognition levels include:

- **Individual.** Acknowledge the contributions and accomplishments of specific people or everyone who contributed to your success.
- **Team.** Recognize the achievements of your energy team.

Establish Recognition Criteria

Create criteria for recognition and communicate these criteria and any process eligibility requirements. Recognition criteria might include achievements such as: **1)** offered the best energy and/or water savings ideas; **2)** achieved the greatest energy/water use reduction; and **3)** increased savings by a certain amount.

Determine Recognition Type

There are a variety of ways to provide recognition and rewards. Forms of recognition can range from formal acknowledgements and certificates, to salary increases and cash bonuses, to simple forms of appreciation such as coffee mugs. You may consider:

- Asking the owner or a senior manager to provide the recognition.
- Using a formal means for providing recognition, such as an award ceremony.
- Using progress evaluations to inform the recognition process.

7.2 Receive External Recognition

Good work deserves to be acknowledged. Recognition from a third party provides validation for your business's energy and water management program. Not only does it provide satisfaction to those involved in earning the recognition, but it can also enhance your business's public image. A solid reputation contributes to your competitive advantage by making your business more attractive to customers, current and potential employees, lenders, business partners, and other stakeholders. For example, those buildings that have earned the ENERGY STAR are able to differentiate themselves in the market to highlight their commitment to efficiency.

You can communicate your success story through local advertising, LinkedIn, Facebook, YouTube, Twitter, and other social media. To develop a communications plan, review the ENERGY STAR Resource on Planning a Communications Strategy and/or the ENERGY STAR Communications Toolkit. The toolkit has many valuable resources to help share your work and results.

Other ways to gain recognition for your business's efforts can include:

Partnership Programs. Tell NACS about your efforts and results. If you are not an ENERGY STAR partner, join ENERGY STAR.

Performance Standards. Meet widely recognized standards of performance, such as those established by ENERGY STAR, that reflect superior performance.

- **ENERGY STAR Certification for Existing Buildings.** As highlighted in Step 2, convenience stores cannot currently earn ENERGY STAR certification, but with the NACS energy use survey, you should have that option soon. The integrity of the score is assured by the requirement that all data be verified by a licensed Professional Engineer or a Registered Architect.

Awards, Challenges, and Competitions. Participate in ENERGY STAR Competitions and Challenges to see how much energy and water your store can save—with opportunities to earn recognition from ENERGY STAR for your successes.

- **ENERGY STAR Treasure Hunts.** During an Energy Treasure Hunt, teams walk around a facility looking for quick ways to save energy. Those quick fixes can add up to big savings. Hundreds of

organizations have used Energy Treasure Hunts to reduce their facilities' energy use by up to 15 percent.

- **ENERGY STAR National Building Competition.** Energy managers at commercial buildings in every state compete to see who can save the most energy and water. Competitors will work off the waste through improvements in energy and water efficiency and can receive recognition for achieving specific reductions.
- **ENERGY STAR Guide to Energy Efficiency Competitions.** If your store is interested in setting up or participating in a competition, see the ENERGY STAR Guide to Energy Efficiency Competitions which can take you step-by-step through the process.

7.3 Review: Recognize Achievements

In Step 7, you looked at different ways to recognize key individuals and the team of people that created and executed your energy management program. You also learned various ways to share your story and solicit external recognition. Use the checklist below to measure your progress.

1. **Provide internal recognition:** Publicly recognize those who made the energy program succeed.
2. **Tell your story:** Share your team's results with NACS and others through traditional and social media, such as local newspapers, community "bulletin board" websites, LinkedIn, Twitter, and Facebook.
3. **Plan an energy efficiency competition in your workplace:** Enter a competition that supports a good cause and inspires excellence. Check out the ENERGY STAR Guide to Energy Efficiency Competitions Guide. All buildings can participate in EPA's National Building Competition.

Now that you're familiar with the ENERGY STAR Action Workbook for Convenience Stores, we invite you to review the more in-depth technical information contained in the appendices. You will find guidance on getting started with Portfolio Manager, energy audits, working with contractors, project financing, and additional online resources. Don't forget—you can find frequently asked questions or email your own questions anytime to ENERGY STAR tech support. Good luck and let us know about your success!

Appendix A - Benchmarking your Property with Portfolio Manager®

Entering your property's energy and water use data into the free online Portfolio Manager software will allow your team to track and measure the property's energy and water use over time—this is especially helpful as new upgrades are implemented. You will need both property data and utility data to benchmark your building in the program. Before you set up an account, it can be helpful to review what data is needed. The ENERGY STAR data collection worksheet will highlight what specific data is needed after you select the "Convenience Store" property type from the "Retail" section in the dropdown menu. Note that the data collection worksheet differentiates between stores with a gas station and stores without a gas station.

Required information includes:

- Portfolio Manager username and password.
- The building street address, year built, and contact information.
- The building gross floor area, irrigated area and occupancy.
- 12 consecutive months of utility bills for all fuel types used in the building and water if you will also track water. If you don't have this information readily available, contact your utility provider(s) as most will be able to easily supply this historical information.

Optional convenience-store specific information includes:

- Number of workers on the main shift, number of cash registers and computers.
- Number of, and length of, open or closed refrigeration/freezer units.
- Number of, and area of, walk-in refrigeration/freezer units.
- Cooking facilities (yes or no).
- Percent of the store that can be heated and cooled.

Once you have collected your property's data, you're ready to create the Portfolio Manager account. ENERGY STAR has a Quick Start Guide to walk you through setting up an account, and inputting the data you collected from the data collection worksheet. If you have questions or trouble during the process, the Portfolio Manager Help Desk is a valuable resource to guide you through the process. For more detailed information, utilize ENERGY STAR Training resources. ENERGY STAR has Express Videos which show users how to create a property, add meter data, share building data, and generate reports in five-minute animated demonstrations. Now you can start to look at trends in energy and water use and see your property's performance results per selected metrics. In addition to displaying your results, Portfolio Manager can adapt the data from your account into ready-made reports. Guides are available to help you understand how to produce either Standard Reports or Custom Reports.

Appendix B – Sure Savers: Energy and Water

The convenience store industry shares many of the energy-related challenges seen in other business sectors, such as lighting, heating and cooling, appliances, etc., but what sets it apart is its high dependence on refrigeration, and for some, cooking.

When looking at which products and appliances to purchase, which projects to undertake, and which behavioral changes to implement, the amount of information can be overwhelming. This appendix walks through six project sectors to help your team decide which actions are most beneficial to implement as part of your energy efficiency projects. In your decision-making process, consider both the initial cost of installing the efficient technology/product/practice and its expected energy cost savings compared to the technology/product/practice currently in use.

The sections included in this appendix are:

- Lighting, including parking lot lighting
- Kitchen, Foodservice Equipment, and Refrigeration
- Heating, Ventilation, and Air Conditioning (HVAC)
- Windows and Walls (Building Envelope)
- Office Equipment
- Water

In addition to this information, there are free online resources for more product-specific information:

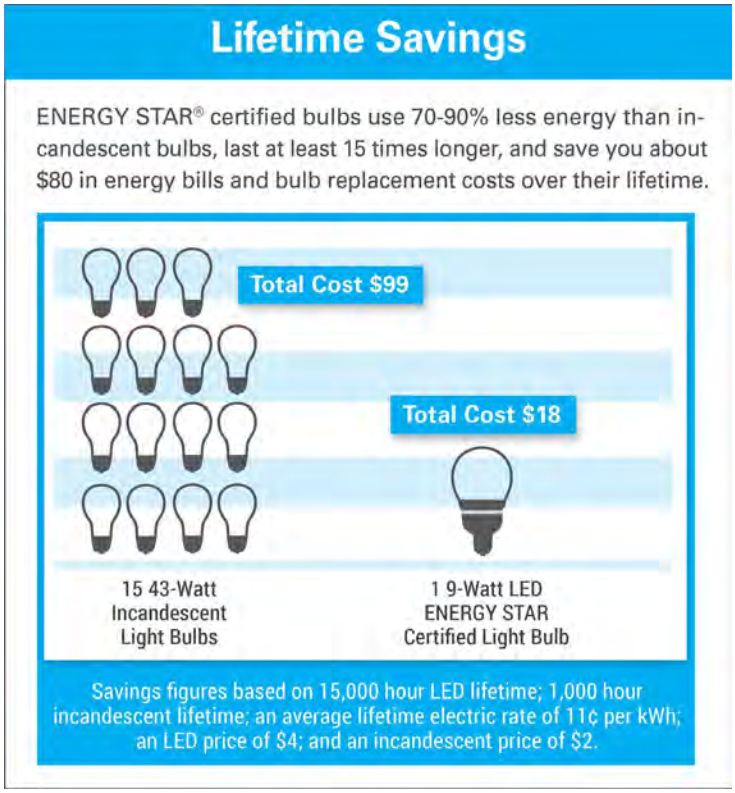
- ENERGY STAR Products website
  - ✓ Learn more about the ENERGY STAR label.
  - ✓ Find ENERGY STAR labeled product lists, cost calculators, and other analysis tools.
- Federal Energy Management Program (FEMP) Energy Efficient Products website
  - ✓ FEMP offers its own recommendations for products not listed under ENERGY STAR.
  - ✓ Detailed information about performance requirements for energy-efficient products, energy cost calculators, and additional resources and analysis tools.
  - ✓ Energy Savings Calculators for appliances.

B.1 LIGHTING

The lighting systems in any property are integral to a safe, functional, and comfortable environment. Traditionally most, if not all, of these lighting needs were met with incandescent or halogen bulbs because of their low initial cost, warm color, and dimming capabilities. However, both types of bulbs are inefficient and radiate significant waste heat. Today, new energy-efficient, long-life bulbs provide features like incandescent and halogen bulbs at affordable prices. The result is a tremendous diversity in lighting products—all with varying efficiencies that could represent energy saving opportunities. This section discusses the two basic ways to achieve energy savings in your lighting system—installing more efficient equipment, and/or changing the way you operate the lighting. This means turning lights off when unneeded, maintaining the lighting systems (keeping them clean), and illuminating spaces only to the light levels required to suit the task. Since convenience stores may operate 24 hours a day or have outdoor lighting on through the night, some of the operations guidelines may not apply.

Use the following information to consider each lighting suggestion as it may apply to your property.

- **Replace incandescent bulbs with ENERGY STAR certified LEDs.** Light Emitting Diode bulbs (LEDs) can be used for your recessed lighting, pendant fixtures, and accent and spot lighting applications. LEDs cost about 75 percent less to operate than incandescent bulbs, and last about six times longer; generating about 75 percent less heat. Until recently, LEDs were more expensive to purchase up front than CFLs; this is no longer the case and LEDs use less energy over the lifetime of the bulb and last longer. New ENERGY STAR specifications set efficiency levels above today's CFLs, and major manufacturers are not investing in CFL technology improvements. Additional benefits to LEDs include superior dimming ability over CFLs, better color rendering, and they contain no mercury. ENERGY STAR certified LED bulbs are available in a variety of shapes and sizes for any



application—including recessed cans, track lighting, table lamps, and more. If you see an incandescent bulb, there is a cost-effective replacement option available. Look for lights that are ON most often and are easily accessible.

  - The ENERGY STAR Lighting Calculator allows you to look at how quickly more efficient bulbs can pay off based on your utility rate, the type of bulb you are replacing, and the replacement type. This can provide a quick estimate on the savings potential of more efficient bulbs.
  - The ENERGY STAR website has many resources on ENERGY STAR certified lighting and the energy savings opportunities by using LEDs.
  - If you have a larger store with more lighting, you should review the US Department of Energy Better Buildings Interior Lighting Campaign (ILC) materials. The ILC is a recognition and guidance program designed to help facility owners and managers take advantage of savings opportunities from high efficiency interior lighting solutions.
  - The Lighting Research Center at Rensselaer Polytechnic Institute is a center for lighting research and education—pioneering research in solid-state lighting, light and health, transportation lighting, and energy efficiency.

- **Turn off lights (and other equipment) when not in use.** High utility costs often include paying for energy that is completely wasted by equipment left ON for long periods while not in use. You may wish to visit the property at a time when everything is supposed to be turned off and make a list of places where the lights were left ON. Also, ensure that exterior lighting—typically not needed during the day—is turned off in daylight hours. Different types of automatic controls can turn lights ON when needed and off when not.
- **Ensure that appropriate lighting levels are maintained.** Too much light causes glare—and it costs more. Fine-tuning the bulb wattage, type, or layout can improve visual quality and reduce energy use. You may want to consider conducting a lighting assessment by walking through your store both during the day and at night to determine if you are over/under lighting certain areas. A good light meter is relatively inexpensive and can provide accurate lighting levels.

- **Upgrade older T12 fluorescent bulbs with magnetic ballasts to more efficient T8 or T5 fluorescent bulbs with solid-state electronic ballasts.** Because T12 bulbs are no longer manufactured, it is timely to upgrade to more efficient T5 or T8 bulbs**.** T5 (less than 1" diameter) and T8 (1" diameter) fluorescent bulbs with modern electronic ballasts use less energy than older T12 (1.5" diameter) fluorescent bulbs while providing the same amount of light. In areas of the property where T12s are used for many hours per week, a T12 to T8 or T5 upgrade can pay back the costs quickly but will require both bulb and ballast changes.
- **Ensure that LED retrofit kits are safe for use.** Underwriters Laboratories (UL), a global safety and science organization, advises that any LED retrofit kits (commonly used to replace recessed ceiling lighting) that are chosen for a project are UL-approved and that proper installation and permitting (if necessary) takes place to ensure they are safe for use.

- **Install LED exit signs.** An LED-illuminated exit sign saves about 90 percent over an incandescent fixture's lighting electricity costs. When deciding whether to replace your incandescent exit signs with LEDs, remember that LEDs last for 25,000 hours, whereas incandescent lamps last for only 750 to 2,000 hours. This decreases the need change bulbs as frequently; the lower risk of bulbs burning out can increase property safety. There is an initial up-front cost increase for LEDs, but once installed and running continuously, they last almost three years before requiring replacement.
- **Install occupancy/vacancy sensors.** Install wall-mounted occupancy or vacancy sensors in high-use areas to automatically turn lighting off when no one is present. If occupants forget to turn the lights off when they leave the space, occupancy sensors turn the lights off after a pre-set time and turn them back on when people re-enter the room. Vacancy sensors automatically turn lights off, but the user must manually turn them back on. Vacancy sensors generally create greater energy savings than occupancy sensors because there are times when occupancy sensors will turn the lights on even when the occupant doesn't necessarily need the lights on. This is particularly true in any space with windows. Investing in dual-technology occupancy/vacancy sensors is an excellent way to save money and energy. These room sensors combine passive infrared and ultrasonic technologies to detect occupants in different ways. Having two technologies that must agree on occupancy helps eliminate false positives—where lights turn off when occupants are sitting still, or lights turn on when no one is in the space but papers flutter, etc. When installing the sensors, remember that even good equipment can be installed in an incorrect location; they should not be installed behind a coat rack, door, bookcase, etc. Likewise, they should be located so that neighboring traffic doesn't inadvertently cause a false trigger. Sensor vendors generally provide a diagram indicating the sensors' "cones of sensitivity" to assist with proper positioning.
- **Install daylight-responsive lighting controls.** Daylight-responsive lighting controls typically consist of dimmable or switchable ballasts and drivers (installed in the fixtures) and a photocell (typically mounted on the ceiling). These components work together to turn lights on and off (or dim) automatically based on available daylight, thus producing energy savings while maintaining the proper illumination levels for the space. The performance of daylight controls depends on customizing the lighting requirements of each individual space. The sensor's installed position should also be carefully considered to ensure that it is accurately tracking task light levels.

Parking Lot/Canopy Lighting

Parking lot and canopy lighting provide visibility for stores at night, highlight signage, and increase safety for customers. In addition to the general lighting guidance, the information below is specific to parking lot/canopy lighting.

- During the day, look for "day-burners" – exterior and parking lot lighting that is on and should only be on at night, and which has a failed or dirty light sensor.

- Use energy efficient principles when designing and upgrading parking lot and canopy listing. The Department of Energy has a guide on Designing Parking Lot Lighting (2013). Although drafted for federal facilities, this guide provides detailed information on the design process, parking lot lighting design considerations, and lighting controls.
- If upgrading your exterior lighting, consider "shielded" fixtures to direct the light where needed and reduce "light pollution." The International Dark Sky Association (IDA) provides information on minimizing the harmful effects of light pollution which includes:
    - Only have lights on when needed
    - Only light the area that needs it
    - Be no brighter than necessary
    - Minimize blue light emissions
    - Be fully shielded (pointing downward)

B.2 Kitchen, Foodservice Equipment, and Refrigeration

Convenience stores provide hot and cold food for customers. For many, refrigeration will be one of the largest energy uses. For those stores with a commercial kitchen, foodservice equipment will add to the overall energy use. Review the following items to consider each suggestion as it may apply to your property.

- **Select ENERGY STAR certified appliances.** If you're in the market for new equipment, think in terms of life-cycle costs, which include purchase price, annual energy costs, and other long-term costs associated with the equipment. While high-efficiency appliances could cost more up front, significantly lower utility bills can make up for the price difference. ENERGY STAR certification currently is available in eight foodservice-specific product categories: commercial hot food holding cabinets, refrigerators and freezers, fryers, steam cookers, ice makers, ovens (convection and combination ovens), griddles, and dishwashers. These energy-efficient products offer energy savings of 10 to 70 percent over standard models, depending upon the product category. Additionally, ENERGY STAR certified commercial coffee brewers offer as much as 35% energy savings and better temperature uniformity compared to conventional models, due to efficient electrical systems and well-insulated tanks.
- **Maintain and repair.** Leaky walk-in refrigerator gaskets, freezer doors that do not shut, cooking appliances that have lost their knobs—all these "energy leaks" add up to money wasted each month. Don't let everyday wear and tear drive up your energy bills.
- **Cut idle time.** If you leave your equipment ON when it is not performing useful work, it costs you money. Implement a startup/shutdown plan to make sure you are using only the equipment that you need, when you need it. Establish and post operating procedures for cooking/baking equipment (for instance, preheating only when necessary, turning down/off equipment when not in use).
- **Recalibrate to stay efficient.** The performance of your kitchen equipment changes over time. Thermostats and control systems can fail, fall out of calibration, or be readjusted. Take the time to do a regular thermostat check on your appliances, refrigeration, dish machines, and hot water heaters and reset them to the correct operating temperature.
- **Cook wisely.** Ovens tend to be more efficient than rotisseries; griddles tend to be more efficient than broilers. Examine your cooking methods and menu; find ways to rely on your more energy-efficient appliances to cook for your customers.
- **The *ENERGY STAR Guide for Cafés, Restaurants, and Commercial Kitchens* can** give additional guidance if you are heavily invested in foodservice and offer additional ways to save energy and

water in your store. ENERGY STAR has success stories from foodservice operations that highlight their successes in implementing energy efficiency options.

- **Reduce Waste**. In addition to energy waste, another avenue for waste reduction that restaurants can consider is reduction in food waste. The U.S. generates more than 36 million tons of food waste each year. Since 2010, food waste has been the single largest component of municipal solid waste reaching landfills and incinerators. Often, simple changes in food purchasing, storage, preparation, and service practices can yield significant reductions in food waste generation and save you money. To assist in food recovery, both EPA and the USDA recommend some of the following steps: reduce the amount of food waste being generated, donate excess food to food banks, soup kitchens, and shelters; provide food scraps and fats to farmers for feed and rendering; donate oil for fuel and food discards for animal feed production; recycle food scraps into a nutrient rich soil amendment such as compost. These steps will all significantly improve your waste impact, but you can take it a step further by joining the EPA's Food Recovery Challenge (FRC).

Refrigeration

For some convenience stores, refrigeration may use up to 40 percent of the property's total energy. That's why it's important to maintain refrigeration systems and to learn about the multitude of energy efficiency options available in today's market. Better technology and improved practices can be applied to all types of refrigeration equipment, such as reach-in, walk-in, and under the counter refrigerators/freezers, as well as a multitude of food/drink storage units and display cases. The following tips are designed to help your store improve the efficiency of its refrigeration, thereby reducing operating costs, saving energy, and preventing pollution.

- **Install ENERGY STAR certified** refrigerators and freezers.
- **Refrigerated case lighting should be LED**.
- **Install anti-sweat controls**. Anti-sweat controls monitor both humidity and temperature to activate heaters in cooler and freezer doors only when needed to prevent condensation.
- **Use defrost controls.** Defrost controls use sensors to intelligently sense when evaporator coils need defrosting, and only then consume the energy necessary to perform that operation.
- **Install strip curtains** and keep condenser and evaporator coils clean.

- **Have walk-in refrigeration systems serviced at least annually.** This includes cleaning, refrigerant top off, lubrication of moving parts, and adjustment of belts. This will help ensure efficient operation and longer equipment life.
- **Alcohol and soft drinks** don't have to be chilled to the lower temperatures required for food.

B.3 Heating, Ventilation, and Air Conditioning (HVAC)

In addition to the recommendations in this HVAC section, many of the improvements discussed in other sections of this appendix can improve the efficiency of your property's HVAC system. For example, efficient lighting has less waste heat and can reduce air conditioning costs; making sure the property is well insulated will allow the HVAC system to work less to maintain desired indoor temperatures. Since replacing HVAC systems are often larger financial decisions, the information below can help your team maintain your existing system and create a replacement plan for a new system. In addition to the points below, see the ENERGY STAR Guide to Energy-Efficient Heating and Cooling.

- **Some larger facilities can use a vestibule to cut down on loss of conditioned air**.
- **Install a programmable thermostat to control the HVAC system.** Programmable thermostats allow you to optimize HVAC operation based on your property's scheduled use and can be overridden as needed for unscheduled events.
- **Check the accuracy of the thermostats.** The thermostats at your business can become dirty or damaged over time, causing them to read an incorrect temperature. This can lead to over-heating or over-cooling of the property and to higher utility bills. Your property's thermostats should be checked annually to make sure that they are working properly by comparing them to a thermometer. Ideally, your property's regular professional HVAC tune up should confirm the accuracy of the thermostat.
- **Change the filters.** To ensure maximum efficiency and air quality, HVAC filters should be cleaned and replaced at least quarterly, and even monthly during heating/cooling seasons. You can also clean and seal ducts to ensure they are not leaking.
- **Clean heating and cooling coils.** For the highest system efficiency, the place where air/water enters the HVAC system should be kept clean. Whether in an air handler or in a rooftop unit, the methods for cleaning include using compressed air, dust rags or brushes, and power washes. In addition, check baseboard heating systems for dust buildup, and clean them if necessary. This should happen twice a year—in the spring and in the fall.
- **Clear the clutter.** Make sure that fan coil units and baseboards are not blocked or covered by chairs, books, boxes, or file cabinets. Besides creating a fire hazard, blocking these units prevents proper air circulation. Always keep the area around supply and return vents clear.
- **Tune-up the HVAC system with an annual maintenance contract.** Just like a new car, even a new ENERGY STAR certified HVAC system will decline in performance without regular maintenance. An annual maintenance contract automatically ensures that your HVAC contractor will provide pre-

season tune-ups before each cooling and heating season. Use the tune-up appointment to have your contractor check for possible leaks in the property's duct system.

SHOULD HVAC EQUIPMENT BE RUN TO FAILURE?

All types of equipment have a certain useful lifetime. This lifetime may be extended with regular maintenance, but at some point, the equipment will need to be replaced. Replacement offers an opportunity to invest in energy efficiency and can impact energy consumption and costs for years.

Because major HVAC equipment (boilers, air conditioners and air handlers, chillers, etc.) typically has a long, useful life and a major impact on energy consumption, special attention should be paid to this equipment. Replacement of major HVAC systems is expensive and can have a big impact on finances. For this reason, you should check equipment periodically to estimate its remaining life. When the equipment is one to two years from the end of its remaining life, plans for replacement should begin—ideally choosing an ENERGY STAR certified unit. The difference between running to failure and scheduled replacement are best outlined through the following scenarios.

- **Scenario 1 – Run HVAC system to failure:** A convenience store in Minnesota has an HVAC system that heats and cools the building. Although the system has been well maintained, it is 40 years old. On one particularly cold night, the system stops working entirely. The technician comes and says that it can't be fixed. Although the building owners and operators knew that the equipment was old, they'd never really thought about it or planned for this occasion. Now, the business is facing a dilemma. They need a new HVAC system installed right away to keep the store functioning for the rest of the winter. They call the local HVAC system installer who carries a few models. The models that they usually stock are not high-efficiency, but they do have a lower up-front cost, and they're in the warehouse ready for installation. High-efficiency models are available, but they are more expensive, and aren't stocked in the supplier's warehouse. The building owners choose the regular efficiency unit because it is available right away and is the cheapest. Although this unit may be less expensive in terms of upfront costs, the lifetime costs of operation, maintenance, and utility costs make it more expensive. Higher quality may cost more initially but will outlast and outperform a cheaper version for life-cycle savings.
- **Scenario 2 – Scheduled HVAC replacement:** The same Minnesota store has an HVAC system technician come every year to tune-up the system and let the owners know its performance. This year, the technician informs the owners that the unit will probably last this year and one or two more seasons, but past that point it doesn't look good. The business starts to set aside funds for a new system. They talk to the supplier about different options available and find out that the high-efficiency models are 20 percent more expensive up front, but that over their estimated 40-year lifespan, they take only a few years for the energy savings to make up for the extra cost. The team considering this decision comes to agreement that the high-efficiency unit is a better deal and will save the business money on utility bills. The business puts aside the money, and after the end of the second heating season, the staff schedules the replacement with the supplier. The new HVAC unit needs to be shipped which will take two weeks, but since the replacement decision was planned for

mild weather, there is no issue with heat/cooling needs. The new system is installed, tested, and ready for the next heating/cooling season well ahead of time.

In these two scenarios, the difference is that the second group had the time to sit back, think, and make a decision that made sense in the long run, rather than being limited by the situation at hand. By keeping a close eye on the condition of major HVAC equipment, businesses can plan and make the best decisions possible, which usually mean that equipment is not run to failure.

B.3.1 APPLYING THE CONCEPT

A major piece of equipment is most likely to fail when it is under the most stress or greatest demand. Therefore, it is likely to fail at the "worst possible time." Heating equipment is likely to fail on the "coldest day" and air-conditioning on the "hottest day." Without a planning and replacement strategy in place, a business can either "do without" or jump to a major purchase with too little research and too few good choices and be faced with long-term cost implications. Regularly scheduled maintenance (at least annual or "pre-season") and a replacement plan are the responsible financial approach for your property and its vital HVAC equipment. ENERGY STAR has a checklist to help determine when it is time to replace your equipment.

B.4 BUILDING ENVELOPE

Your property's building "envelope" or "shell" includes windows, walls, a roof, and insulation. Addressing leaks that allow unwanted air infiltration into the building envelope can often eliminate a major energy drain. Outside air can enter a building through a variety of places, most commonly the windows, doors, walls, and roof. Outside air can be refreshing, but only as controlled ventilation, not as accidental infiltration. Improvements to the envelope will vary based on several factors, including how the property was built, when it was built, and how it is maintained. The following suggestions provide detailed information on how to check specific areas, address small leaks, and if necessary, suggest greater improvements to the envelope. These include checking: 1) leaks in the overall property; 2) exterior walls; 3) roof; 4) windows and shading; and 5) doors. ENERGY STAR has sealing and insulating resources that you can use to fix leaks as you walk through the property—this includes installing weather stripping, insulating ducts, sealing leaks around windows and doors, and adding insulation. The resources can also help you determine which projects you can do yourself and which may need external expert resources.

B.4.1 CHECK FOR LEAKS IN THE OVERALL PROPERTY

Follow the steps below to identify and fix weak points in your property's overall building envelope. You will also get to know the structure and elements of the building better in the process. You may find it helpful to have the items listed below on hand when completing the building envelope assessments for your property. To complete the task, you should have the following materials on hand: tape measure/ruler; incense stick and lighter; flashlight; digital camera; ladder; and thermometer. Then follow the steps below to identify and fix problems in the property's overall building envelope.

- **Collect architectural and construction drawings of the building**. Use these resources to determine the layout of internal zones and the construction of exterior surfaces.
- **Look for noticeable air infiltration in the property and record your observations**. Record temperatures from different points throughout the building to identify less noticeable infiltration points.
- **Run either a smoke pencil or a lit incense stick slowly along door jams, window frames, and vents to determine the level of air flow**. This flow is "air infiltration" or the exchange of unconditioned outside air that your business paid to heat or cool. Record locations where there are drafts or a lot of air movement in your building sketch. You may need to turn on the air handlers (fans/ventilation) to create air pressure.

- **Check the interior walls**, being sure to record the wall construction, insulation/wall condition and noticeable air infiltration.
- **Take a digital photo of all areas of concern**.

B.4.2 CHECK EXTERIOR WALLS

Follow the steps below to check for problems with the property's exterior walls.

- **Check for and fix air leaks:** Unconditioned outside air can add additional heating or cooling requirements. Seal areas of infiltration in walls using caulk or weather stripping to prevent unconditioned air from entering your property.
- **Check for and fix rainwater leaks:** Wet insulation is not as effective as dry insulation, and excess moisture can create mold, rot, and structural decay. Mold can be a serious health hazard for staff and customers. Fix rain leaks in exterior walls by repairing poorly installed siding, flashing, weather stripping, or caulking.
- **Check the insulation**: Installing additional insulation in exterior walls is a possible way to reduce heat gain or loss. However, depending on the construction of the building, this could be very labor intensive and expensive:
    - Use loose-fill insulation for enclosed existing walls and hard to reach places.
    - Use rigid fibrous insulation for ducts in unconditioned spaces and other places that can withstand high temperatures.
    - Use spray foam or foamed-in-place insulation for enclosed existing walls.
    - Make sure to use ENERGY STAR Certified Insulation for optimal efficiency results.

B.4.3 CHECK ROOF

Follow the steps below to check for problems with the property's roof.

- **Check the roof for the following and record** any water intrusion and the roof age and warranty.
- **Assess the roof condition** (including signs of leaks, membrane holes, and damaged insulation)
- **Check to see if the roof surface needs replacement**: Research and consider the possibility of retrofitting the existing roof with a "green" roof or a "cool" roof to reduce heat transfer; the Department of Energy has a Cool Roof Calculator to help you make this assessment. Additionally, you can review the Global Cool Cities Alliance's Cool Roof Toolkit for more options. Make sure to have a structural engineer evaluate the building if the new roof is going to add weight to be sure that your building is strong enough to carry the additional weight.
- **Check the insulation**: You may want to use a professional to determine the best insulation solution if you need to add more/replace existing insulation. Make sure to use ENERGY STAR Certified Insulation for optimal efficiency results.

B.4.4 CHECK WINDOWS AND SHADING

Follow the steps below to check for and fix problems with the property's windows and shading.

- **Fix leaks:** Seal areas of air infiltration, using caulk or weather stripping to prevent unconditioned air from entering the building.
- **Check the windows**, especially if you are considering replacements, being sure to record:

  - Window condition (cracked or broken glass, dry rot, missing caulk, etc., both inside and outside).
  - The window to wall ratio on each façade (the area of the window: the area of wall).
  - Window size and dimensions.
  - Window framing and type of thermal break.
  - Window type (double paned, single paned, etc.).
  - Window operation.
  - External window shades/overhangs/caulking.
- **Consider installing new ENERGY STAR certified windows/skylights**: New windows are expensive and may not provide the savings relative to cost of many other upgrades. However, when the property needs new windows, replace old or single-pane windows with ENERGY STAR certified double- or triple-pane glass and an insulating gas. Consider choosing windows with tints, heat reflective coatings, or laminates to further reduce heat gain. Old and metal window frames should also be replaced with non-metal insulating frames.
- **Check exterior shading**: Overhangs, awnings, shade screens, roller blinds, and vegetation can provide exterior shading that also reduces the glare from direct sunlight striking glass windows. Overhangs and awnings can be particularly beneficial because they admit light from the low winter sun (when sunlight is beneficial for heating and lighting) and tend to block the higher summer sun (when solar gain is less desirable). Western sun in the summer, especially in hot climates, can increase the cooling requirement of your HVAC system substantially, so it is a good idea to focus shading to the western windows first (in warm climates).
- **Plant a tree**: Deciduous trees are very effective at providing shade. During the winter when they are bare, they allow sunlight to pass through; in summer they leaf out and provide shade. The best location for deciduous trees is due west of west-facing windows. East, southeast, and southwest sides of buildings are also good locations. Plant trees within 20 feet of windows and allow them to grow at least 10 feet higher than the window.

B.4.5 CHECK DOORS

Follow the steps below to check for and fix problems with the property's doors. If you need to replace doors, research a replacement door that is ENERGY STAR certified.

- **Check for and fix air leaks**: Seal areas of air infiltration doors using caulk, weather stripping, and door sweeps to prevent unconditioned air from entering the property.
- **Calibrate automatic doors**: If your property has doors that open automatically, set the sensitivity so that the doors only open when people are approaching the doors. This is especially important if there is a commonly traveled pathway close to the door.
- **Install revolving doors**: One technical option is installing a revolving door to reduce the exchange of unconditioned and conditioned air. However, this could be an expensive option.
- **Create an entrance vestibule**: A vestibule is two sets of doors separated by a small enclosed space. The idea of a vestibule is that only one set of doors is open at a time. This reduces the amount of unconditioned air entering your property.

B.5 Office Equipment Guidance

Office equipment can present an often-overlooked opportunity for energy and cost savings. Surveys show a steady increase in the volume of electronic office equipment being used by all types of businesses. This includes computers, printers, copiers, televisions, and registers. Review the following information to consider each suggestion as it may apply to your store:

- **Always buy ENERGY STAR certified products when new office equipment is needed.** The ENERGY STAR label indicates highly efficient computers, printers, copiers, televisions and other small appliances and equipment. Equipment that has earned the ENERGY STAR saves energy and money. Many of these products save energy by utilizing auto-power down settings which cause the unit to enter a sleep or off-mode when not used after a certain amount of time. In addition, they also consume less energy when in use. The easiest way to measure potential cost savings from investing in ENERGY STAR certified office equipment is to use one of the free online ENERGY STAR calculators for office equipment.
- **Set computer power settings to save energy when not in use.** An average desktop computer consumes 58 watts when powered on and three watts when in a sleep state. Over 60 percent of computers in the United States (U.S.) are left powered on overnight. This will waste significant amounts of money and energy while generating excess heat on site and unnecessary carbon emissions at the power plant.
- **Utilize Smart Power Strips.** Smart power strips address a key energy-wasting issue: the fact that many appliances and other equipment pull a slight energy load, even when turned off (also called the “vampire effect”). Many devices can be plugged into the same power strip, which can then be turned off to ensure that the appliances are not drawing any power. can be used for office and kitchen equipment that “stays on” even when turned off, such as a television, coffee maker, or stereo system. Smart power strips are available from most electronics retailers, but it's also a good idea to check with your local utility. Many electric utilities offer smart power strips at a discount or rebate a portion of the retail price.
- **Develop an education and/or training program to encourage energy conservation.** Educated staff can make significant contributions to load reduction by simply turning off office equipment when it is not in use and enabling energy-saving settings for computers and monitors.
- **Print double sided pages**. Much more energy is used in the manufacturing and distributing of paper than the actual printing at your office. This will also save on paper use and waste.

B.6 WATER—HOT AND COLD

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 store consumes, the more 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. The WaterSense at Work: Best Management Practices for Commercial and Institutional Facilities guide is a comprehensive guide to managing commercial water use. Read more on how to save water with the suggestions below.

- **Conduct a water assessment to identify major water uses within the property.** Look for opportunities for savings; use Portfolio Manager to track your water use across your property, compare your water use over time, and against other properties in your portfolio.
- **Use water-saving faucets, toilets, and urinals to save water.** WaterSense-labeled products can save a great deal of water and therefore energy. For example, WaterSense toilets use 20% less water than those manufactured following the current federal standard. Replacing just one older inefficient urinal with a WaterSense-labeled model could save your property approximately 4,600 gallons of water per year. Additionally, truck stops that offer showers should consider WaterSense-labeled **showerheads**.
- **Purchase an ENERGY STAR certified water heater when purchasing a new water heater.** If your water heater is outdated or working inefficiently, upgrading to an ENERGY STAR certified model will reduce water heating costs. All water heaters, especially gas-fired, should be inspected annually for safety as well as efficiency. Keep the immediate area around water heater clean and free of any debris and allow nothing to be placed on top of the heater. In areas of infrequent water use, consider tank-less water heaters to reduce standby storage costs and waste. There are a few options when looking to purchase a new water heater:
  - ✓ **High-Efficiency Gas Storage:** High-efficiency gas storage water heaters work the same way as conventional gas storage water heaters but high-efficiency models have better insulation, heat traps, and more efficient burners.
  - ✓ **Gas Condensing:** Gas condensing water heaters operate similarly to conventional gas water heaters, but reduce the amount of gas required by the water heater by approximately 30 percent.

  - ✓ **Heat Pump:** Heat pump water heaters use electricity to pass vaporized refrigerant through a system containing a compressor, a condenser coil, and an expansion valve.
  - ✓ **Whole-Home Gas Tank-Less:** Whole-home gas tank-less water heaters work similarly to conventional gas types by heating cold water with a gas burner. However, instead of constantly maintaining a supply of hot water, tank-less water heaters only operate when hot water is needed. By only heating water on-demand, tank-less water heaters can substantially reduce energy consumption in some applications.
  - ✓ **Solar Water:** Solar water heaters come in a variety of designs, but all include a collector (a device that captures solar thermal energy) and a storage tank for hot water.
- **Insulate water heaters.** Install an insulation blanket on water heaters that are more than seven years old or that are warm to the touch; insulate the first three feet of the heated water "out" pipe on both old and new units.
- **Find and fix leaks.** Small leaks mean many gallons of water and dollars are wasted each month. Water conservation saves energy and money, especially for hot water. Since electricity is also required for purification of drinking water, treatment of wastewater, and pumping of water, fixing leaks will save energy.
- **Set water temperature only as hot as needed.** Typically, hot water should only be heated to 110 to 120 degrees Fahrenheit. This prevents scalding and saves energy. Remember to check local codes for specific temperature requirements.
- **Optimize the amount of water used in heating and cooling systems.** Evaluate cooling towers, chillers, and other large systems to ensure they are running as efficiently as possible. Eliminate single-pass cooling systems wherever possible by re-circulating water or reusing the water for another purpose instead of sending it down the drain.
- **Practice water-efficient landscaping.** Planting native and regionally appropriate plants on the grounds of your property can reduce the need for extensive outdoor watering in the summer. Reducing the amount of turf grass can also save water—turf grass receives the highest percentage of irrigation water in traditional landscaping, much more than landscapes planted with a mix of trees and shrubs. If an irrigation system is used, be sure it has been installed correctly and have it checked for leaks on a regular basis to avoid wasting water. Native trees and other plants can shade and cool your "micro-climate" by several degrees and are less vulnerable to local insect pests than non-native species. WaterSense has many resources on how to save water outdoors.
- **For those stores with car washes, consider water reclamation.** These systems can separate carwash sediment (dirt, grease, oil and chemicals) from the water to make it reusable—increasing water efficiency at the operation. And to measure and manage car wash water use, add a car wash-specific water meter that is separate from the rest of your store.

Appendix C – Energy Audits

As the saying goes, "Time is money." This can be particularly true for small businesses like convenience stores. However, not taking time to save energy can mean big money lost. Reduction in daily energy costs and monthly utility bills can make it well worth the time needed to pursue efficiency upgrades. You may wonder, "Where should I start?" and "Do I replace one piece of equipment or system at a time or should I do a comprehensive upgrade of my entire facility?" The answers to these questions will vary depending on your situation. The age of your store's equipment and facility systems, your local utility rates, your hours of operation, and your access to capital are all key factors in what level of upgrade makes business sense. One place to start is with low-cost and no-cost Sure Savers (see *Appendix B*). Once these have been implemented, and the property has used Portfolio Manager to benchmark energy use, an audit may help your business determine what additional projects make sense. Refer to resources in *Appendix D - Project Financing*, for ideas on how to pay for your audit.

This appendix can help your business determine if an audit is appropriate and, if so, how to choose the type of audit. This appendix tells you:

- What an energy audit is, what types of audits are available, and who can perform them.
- How to prepare for an audit.
- What you can expect the audit to include.
- Where to find more audit resources.

C.1 What is an Energy Audit?

Energy audits are comprehensive reviews conducted by energy professionals and/or engineers that evaluate the actual performance of your business's systems and equipment against their designed performance level or against the best available technologies. The difference between the actual performance and designed performance is the potential for energy savings. Be aware that audits alone don't save energy; you need to implement the recommended improvements to reap benefits.

Money saved due to implementing auditor-recommended improvements may justify the up-front cost of the audit. However, your budget may limit the types of audit that would make financial sense, because recommended improvements that are not performed shortly after the audit can become outdated. If your store has limited property improvement funds, an audit targeting specific types of

projects may be the most cost effective as it will recommend projects your business can implement in a short time frame with allotted project funds. This section will help you understand the types of audits and auditors.

C.1.1 TYPES OF ENERGY AUDITS

If you decide to conduct an energy audit, you will need to choose which type of audit is the best fit by considering the cost of the audit, your Energy Team's project goals and access to funding, and the implementation timeline. It is wise to start with benchmarking and implementing the Sure Savers and other steps described in *Appendix B*, to see what you can save prior to an audit.

ASHRAE AUDITS

There are several types of energy audits that survey your property at different levels of detail. The types of audits as defined by American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) standards are:

- ASHRAE Level I – Walk-Through Analysis
- ASHRAE Level II – Energy Survey and Analysis
- ASHRAE Level III – Detailed Analysis of Capital-Intensive Modifications.

These audits are described in detail below. Although the accuracy of the audit is directly related to the level of detail (e.g., a Level III audit is more accurate than a Level II audit), the most extensive and accurate audits may not be necessary or cost effective to accomplish your business's goals.

Types of ASHRAE Energy Audits

ASHRAE Level I - Walk-Through Analysis: Focuses on low- and no-cost energy conservation measures and provides a list of higher cost energy conservation measures. Typically, these audits will result in a report about how much energy and money can be saved from specific efficiency opportunities. If you have benchmarked and implemented the Sure Savers, you will have already completed most of the analysis that this type of audit provides.

ASHRAE Level II – Energy Survey and Analysis: Expands on the Level I audit by including more detailed energy calculations and financial analysis of proposed energy efficiency measures. The financial analysis used is typically a life cycle analysis, which allows you to better understand the financial benefits of installing energy efficiency measures. You are typically provided with a list of energy conservation/efficiency measures, an estimate of the amount of money and energy that will be saved, and an estimate of the amount each measure will cost. These reports should also include any changes that need to be made to operations and maintenance procedures.

ASHRAE Level III – Detailed Analysis of Capital-Intensive Modifications: Expands on the previous levels of effort and is based on a specific subset of energy conservation/efficiency measures to analyze further. This may include further refinement of an energy model or more extensive data collection. These are often used to provide detailed information to lenders for larger projects.

C.1.2 FINDING AN ENERGY AUDITOR

Unless you conduct an audit yourself, you can choose from three main types of energy audit providers: 1) utility companies, 2) private sector companies, and 3) state energy offices. The following paragraphs describe these types of auditors in more detail.

Your utility company may offer free or inexpensive energy audits and/or have an energy conservation department.

Private-sector companies include consultants, energy service companies (ESCOs), and ENERGY STAR service and product providers (SPPs). These companies can conduct audits, evaluate and recommend projects to improve building energy efficiency, and can estimate energy use, savings, and project cost:

- **Energy consultants** can sometimes prepare project specifications or engineering designs. Energy consultants do not usually provide financial or management services and they are not involved in the actual project implementation process.
- **ESCOs** have the goal of being hired by your property to install and manage the projects they recommend. For this reason, ESCOs have a vested interest in the completion, operation, and resulting savings from your projects, and will guarantee positive results as part of a long-term performance contract. Some ESCOs also provide financing and equipment maintenance. The major difference between ESCOs and energy consultants is the financial arrangement. ESCOs will often pay the up-front costs of implementing the efficiency projects and will be paid through the savings achieved. This can be a good option for businesses that don't have access to capital to implement the projects on their own.
- **SPPs** (which can include energy consultants and ESCOs) are companies that assist commercial buildings operate more efficiently by helping clients benchmark energy performance, improve efficiency, and earn recognition. ENERGY STAR maintains a list of service and product provider (SPP) partners. To partner with ENERGY STAR, a company must demonstrate a minimum level of past and ongoing experience working with Portfolio Manager and earning ENERGY STAR certification for their client buildings.

Your state energy office may offer free or inexpensive energy audits. The National Association of State Energy Officials (NASEO) State and Territory Energy Offices has an interactive map to highlight state energy offices.

C.1.3 CONTRACTING A PRIVATE COMPANY TO PERFORM YOUR ENERGY AUDIT

Once your store has reviewed the types of audits and auditors available, you may choose to hire a private sector company for an audit. In this case, you can either select the company by sole source or competitive bid. In a sole source selection, you negotiate with a single consultant/ESCO. In a competitive bid, you advertise your team's need for a consultant/ESCO and receive bids from firms interested in doing business with you.

If your store owns its own property, you are well-suited to negotiate exclusively with a single consultant/ESCO. When hiring via sole source selection, your team can negotiate until a mutually

agreeable cost is reached. During these negotiations, be sure to understand the scope of the audit and its minimum reporting and analytical requirements; more specifically, ensure that assignments, deliverables, and schedules are clear and understood by all parties.

The major drawback to sole source contracts such as these is that they can be costlier than competitive bid contracts due to a lack of market competition. However, establishing a long-standing working relationship will allow the consultant/ESCO to become familiar with your property's energy equipment, needs, and problems, and will also negate the need for your team to review proposals for each separate project. Understanding the prices of competitive bid contracts in your area prior to negotiating the price of a sole source contract will help derive the benefits from a sole source contract at a competitive market price.

C.1.4 YOUR ENERGY TEAM'S ROLE

If you hire an outside auditor, your Energy Team will be responsible for monitoring the auditor's activities. This section outlines steps and activities for your Energy Team to ensure the audit's success:

- If your store plans to solicit competitive bids for your audit, the Energy Team can prepare a Request for Proposals (RFP) to hire an auditor. ENERGY STAR has a sample RFP to assist you in preparing this document.
- Your team should familiarize themselves with the building in terms of equipment, energy use, and design (mechanical and electrical).
- You will need to manage the energy auditor through maintaining communication with decision-making staff and overseeing the auditing work.
- Review the energy audit:
  - ✓ Be aware of the types of improvements the property is interested in and their relative priority.
  - ✓ Check to make sure that the assumptions used in the audit calculations make sense with respect to how the building operates.
  - ✓ Create a final report based on the audit results and produce a detailed summary of actual steps that can be taken to reduce energy use. The report should recommend actions from simple adjustments in operation to equipment replacement. Estimates of resource requirements for completing actions should be included.

C.2 PRE-AUDIT CHECKLIST

Once your Energy Team has chosen an energy auditor, you will need to prepare for their visit. You can help your auditor determine appropriate project recommendations by answering questions about your property's energy use and construction. If your business owns its own building(s), providing the consultant with electrical and mechanical drawings of the property will help the auditor perform the job, and will also help control costs; if electrical and mechanical drawings are unavailable for your property, the consultant will need to reconstruct a schematic for equipment operations.

Reviewing a consultant's work can be done internally if your team already has a staff member who is familiar with energy auditing methods and the projects recommended by the auditor. If your property

does not have such a person (or group of people) on staff, it may be worthwhile to get an independent review of the recommended projects. Consult your local utility or state energy office for assistance. You should have an up-to-date Portfolio Manager account for your property with at least 12 months utility data included. This will ensure you have the needed data for an audit, such as property use, a list of on-site equipment and associated use profiles, energy costs, and newly implemented projects and upgrades (without knowledge of new project implementation, the audit may assume your property has been using current equipment for the past 12 months).

C.3 What to Expect

C.3.1 Analysis of Existing Equipment

Depending on the type of energy audit your team chooses, you should expect specific things from the auditor. When negotiating with a sole source or stating your team's project requirements in a competitive bid RFP, be sure to specifically indicate the requirements of the audit. To get a better idea of what an energy audit will include, see the audit types listed below. You can also do a search for "sample energy audits" on the internet to see many different examples.

Types of Energy Audits

Targeted Lighting: Targeted lighting audits typically include, at a minimum, a count of the number and types of fixtures in each room and spot checks of light levels.

Targeted HVAC: Targeted HVAC audits include computerized simulations to extrapolate annual operating energy use based on equipment set points and regional weather factors.

Comprehensive: Comprehensive audits evaluate the building envelope, lighting, domestic hot water, HVAC, kitchen equipment, and controls in the property. Computer models are used to simulate building and equipment operations, considering weather, equipment set points, hours of operation, and other parameters. Estimated energy consumption is compared to the property's utility bill charges to ensure that the consultant is not over- or underestimating energy savings from proposed investments.

C.3.2 Project Implementation

Having the consultant who performed the energy audit also prepare a performance specification will help to ensure that your property selects appropriate project types and specifies adequate project quality. Performance specifications will inform equipment contractors and installers about the type of project your team is undertaking. Performance specifications may add up to a few cents per square foot to the cost of a single-purpose or comprehensive energy audit.

In addition to the ENERGY STAR resources highlighted in this section, the US Small Business Administration (SBA) and US Department of Energy (DOE) have audit resources such as:

- SBA State and Local Energy Efficiency Programs
- DOE Professional Home Energy Audits
- DOE Small Business Energy Audit Program

Appendix D – Project Financing

When evaluating energy efficiency upgrades, convenience stores should consider the upfront costs of new equipment and appliances. Usually, these upgrades save you money over time—money that can be used to pay for the cost of future projects. When looking at the project financing this way, your business can plan forward, allowing you to draw on dollars saved from future energy bills to pay for new, energy-efficient equipment and projects today. Some upgrades require little funding. For those that do require investment, there are many traditional and non-traditional financial resources available.

For small, inexpensive projects, you may want to use your own internal funds to pay for the upgrade to keep your payback period low and return on investment high. For larger jobs, financing might be the only way to pay for the upgrade. It's your business decision to weigh competing needs for capital versus continuing increases in operating costs for energy. But remember—even a longer return-on-investment energy efficiency upgrade results in affordable comfort, and new, more reliable equipment. Strategic energy efficiency investments are your hedge against the certainty of higher utility bills that you cannot control. This appendix highlights:

- Where to find ENERGY STAR calculators to inform your decision-making process.
- How to pay for upgrades.
- What factors to consider when choosing financing.
- Why you may consider a utility bill audit.
- Additional online financing resources.

D.1 ENERGY STAR CALCULATORS

ENERGY STAR offers online calculators to help you determine a best course of action for your business's planned energy efficiency projects. The Cash Flow Opportunity Calculator at can help you answer three critical questions about potential energy efficiency investments:

- How much new energy efficiency equipment can be purchased from anticipated savings?
- Should you finance the equipment purchase or wait and use cash from a future budget?
- Is money being lost by waiting for a lower interest rate?

The Building Upgrade Value Calculator estimates the financial impact of proposed investments in energy efficiency in office properties. The calculations are based on data input by the user, representing scenarios and conditions present at their properties.

The ENERGY STAR Financial Value Calculator helps you quantify the value of improvements in energy efficiency to your organization. The calculator uses the prevailing price/earnings ratio to estimate the market value of increased earnings that can result from increased energy efficiency.

D.2 How to Pay for Upgrades

Today there are many opportunities to finance energy efficiency projects—whether through energy performance contracting, loans, commercial leases, tax-exempt financing, or financial advisory services. This section contains information on the different types of financing options that may be available. It also lists factors to consider when deciding which type of financing to use for a project.

Although the right financing option depends on many factors—such as debt capacity, in-house expertise, and risk tolerance—there are viable options for virtually any type of organization to implement a well-designed project. You may choose to fund projects with cash or savings, utility incentives or rebates, grants, loans, or a combination of these. ENERGY STAR has online resources for finding project financing.

D.2.1 Cash or Savings

A cash purchase is the simplest method for financing energy performance improvements. It is well suited for small or low-risk upgrades and makes sense if you have cash reserves and a strong balance sheet. The advantage of a cash purchase is that all cost savings realized from the upgrade are immediately available. Generally, relatively inexpensive, simple efficiency measures that are likely to pay for themselves in about a year are purchased with cash because the costs of acquiring financing (e.g., the cost to borrow money, the cost of time invested in researching opportunities, etc.) may exceed the projected savings. Most businesses want to keep some liquidity, and cash/savings are things that they would rather not tie it up in larger investments.

D.2.2 Utility Incentives or Rebates

Utilities often provide financial incentives for energy performance upgrades, fuel switching, and even energy audits. They also sometimes provide low-interest loans. Check with your local utility to learn which programs are available. Your business may also be eligible to receive immediate rebates or tax incentives on purchases of ENERGY STAR certified equipment. See the ENERGY STAR online Rebate Finder to find special offers, tax breaks, and rebates from ENERGY STAR partners in your area.

Another good source of rebate information is the Database of State Incentives for Renewables and Efficiency (DSIRE), which contains local, state, federal, and utility rebates. Additionally, the Chambers for Innovation and Clean Energy (CICE) shares information, tools and resources with chambers and their member companies about the economic benefits and opportunities associated with clean energy and innovation. The federal government and many states reward efficient building upgrades with tax incentives.

D.2.3 ENERGY UPGRADE GRANTS

Grants for energy upgrades are usually better suited for larger projects that require extra funding because the process of applying for a grant requires time and resources. Because finding and applying for grants can take a large amount of time, you should implement Sure Savers (*Appendix B*) and look for rebates before you apply for grants. Energy grants come from many sources—from state and federal governments and from other organizations. Some grants require matching funding from your business; some will provide a portion of the funding for a specific type of project; others will fund a complete upgrade. Many grants are available to non-profit organizations only, so consider that you will need to perform extra research to find grants applicable to your small business.

To keep up with opportunities now and on the horizon, your business could have someone from your Energy Team track grant deadlines and requirements. You should also keep a file of past grant proposals and general information to be able to quickly put together a new proposal. Energy audit reports are often a good source of information when preparing a grant proposal. Because grants are time-consuming efforts with a quick turnaround, consider whether time spent pursuing grants may be better used elsewhere. Some current grant programs that are currently available are listed below.

State programs: Grants for efficiency upgrades vary from state to state. The Database of State Incentives for Renewables and Efficiency (DSIRE) has state-by-state listings for all renewable energy and energy efficiency financing options, including grants, loans and tax incentives. The National Association of State Energy Officials (NASEO) lists all State and Territory Energy Offices which may have state-specific funding resources.

Small Business Administration (SBA): The SBA maintains a listing of state, local and regional grants and loans that offer financial assistance to small businesses making energy efficient upgrades or developing energy efficient technologies.

Other programs: There may be other programs that offer loans and/or grants for efficiency upgrades. For example, the Office of Energy Efficiency and Renewable Energy's Better Buildings Neighborhood Program helps state and local governments develop sustainable programs to upgrade the energy efficiency of homes and buildings. The Local Government Commission (LGC) has compiled a listing of energy-related financing, incentive, and education programs.

D.2.4 LOANS

If you are not able to fully fund your project work through cash, grants, and other avenues, your business may want to consider taking a loan for part of the initial investment. Lenders may require a down payment on loans for energy projects. Your borrowing ability will depend on current debt load and creditworthiness. Loan payments may be structured to be equal to or slightly lower than projected energy savings, creating a positive cash flow. In this financing arrangement, your business will bear all the risks of the project and receive all the benefits. Visit the SBA listing of state, local, and regional grants and loans for more information about its loan products.

D.2.5 EQUIPMENT LEASING

Instead of paying for an entire upgrade in full, you may decide to set up a leasing agreement and make payments over time. Leasing agreements may be with a specific retailer or contractor. Laws and regulations for equipment leasing are complex and change frequently, so be sure to consult your financial advisor(s) before entering into a lease agreement. Also note that lease terms may charge a higher interest rate than a loan, so be sure your Energy Team considers the total ownership cost of leasing versus taking out a loan before deciding. For more details on equipment leasing, see Chapter 4 of the ENERGY STAR Building Upgrade Manual.

D.2.6 PERFORMANCE CONTRACTING

Performance contracting (sometimes called "shared savings") is the most complex type of arrangement but offers the benefit of risk protection. It is also the costliest financing option because of the amount of monitoring and verification required and is usually used for larger scale upgrades or for larger facilities. However, even this more expensive alternative can yield a positive cash flow immediately upon installation.

In a performance contract, payment for a project is contingent upon its successful operation. For an energy efficiency upgrade, services are rendered in exchange for a share of the future profits from the project. A performance contract can be undertaken with no up-front cost to your business (as the building owner) and is paid for out of the resulting energy savings. The service provider, often an ESCO, obtains financing and assumes the performance risks associated with the project. The financing organization owns the upgraded equipment during the term of the contract, and the equipment asset and debt do not appear on your balance sheet. Financing for performance contracts is based on the cost savings potential of the project. Performance contracting can be applied to purchases or leases. If your team is interested in more details on performance contracting, see Chapter 4 of the ENERGY STAR Building Upgrade Manual and the ENERGY STAR Performance Contracting Best Practices guide.

D.2.7 PROPERTY ASSESSED CLEAN ENERGY (PACE)

PACE (Property Assessed Clean Energy) is a means to finance energy efficiency, renewable energy, and water conservation upgrades to buildings. PACE can pay for new heating and cooling systems, lighting improvements, solar panels, water pumps, insulation, and more for almost any property such as homes, commercial, industrial, non-profit, and agricultural. It works by PACE paying for 100% of a project's costs with a 20-year repayment schedule that is added to the property's tax bill. PACE financing may stay with the building upon sale and is easy to share with tenants.

D.2.8 GROUP PURCHASING

Another way to fund projects is by reducing initial outlay through group purchasing. Why pay more than you must for efficient products and equipment?

D.3 CHOOSE HOW TO FINANCE THE PROJECT

Choosing which type of financing you will use requires a full evaluation of your options. Your Energy Team will need to consider the size of the project and then look at the factors listed below.

Factors to Consider when Financing the Project

Balance Sheet: How much money on hand versus debts. Ensure that any investments your team makes do not leave your business with too much debt.

Initial Payment: A large purchase may be an obstacle for some planning energy efficiency upgrades. If your business has large capital reserves or is planning a small project, it makes sense to pay for the project with cash because all the cost savings from the project will be immediately available to offset the original investment. There are financing options that can move a project forward with no initial capital outlay. If resources are tight, you may want to consider a performance contract.

Payments: Your goal is to obtain financing at a minimum cost. If you do not have enough cash on hand to make a full purchase, determine the monthly payments (through a loan or leasing) that fit into your budget.

Ownership: If your store owns its energy efficiency upgrade equipment, it will receive all the savings; however, it is also liable for any performance risk associated with the equipment.

Performance Risk: There is risk associated with any investment. Energy efficiency upgrades can be low-risk investments because they apply proven technologies with long records of performance. However, the financing option your team chooses will affect who bears the risk of performance failure.

Performance risk of energy upgrades depends on the accuracy of the assumptions about maintenance, cost of energy, occupancy, and other factors. For example, lighting upgrades are typically considered a lower risk investment than HVAC investments because lighting use is largely consistent and does not vary with the outside temperature. It can be difficult to predict energy savings from HVAC upgrades because HVAC performance is impacted by the property's ventilation system (e.g. clogged ducts, vents stuck open) and other factors that may not be visible.

D.4 Consider a Utility Bill Audit

Have you considered whether your utility bills are accurate? Do you know that professional analysts say most mistakes are approximately 10% of the bill amount and are routinely repeated month after month? Professional consultants who analyze utility bills say that utilities can overcharge through calculation errors and other billing discrepancies.

Your utility expenses may represent a large budget expense after personnel costs. Your utility expense is an operational cost that you can reduce, not only with ENERGY STAR strategic energy and water management, but by making sure the cost is correctly calculated at the correct rate classification. Correcting utility billing errors can generate significant savings—some as direct rebates and others as rate corrections that result in long-term savings.

A no-risk audit of your utility expenses reviews your utility bills such as electricity, natural gas, heating oil, telecommunications, water, and sewer. A utility bill audit will refund and remove all erroneous and unnecessary overcharges which results in ensuring that your utility bills are 100% accurate and efficient.

Utility bill audits are typically performed on a contingency basis, which means your business has no out-of-pocket expenses; you pay a percentage of any refunds recovered. If no refunds are recovered, you pay nothing. This is a potentially great source for raising capital and reducing your operational expenses.

Appendix E – Working with Contractors

Once your team has determined projects where a contractor is required, you will need to find a contractor who will operate within your budget. You can locate a contractor by competitive bid or based on their qualifications. As you select a contractor, make sure to obtain the information listed below.

Information to Obtain from Prospective Contractors

References: Ask the contractor to provide multiple current references for work the contractor has performed.

Proof of license and insurance: Make sure the contractor is licensed and insured, including workers' compensation insurance.

Follows regulations: Ask the contractor to certify that their work conforms to state and local regulations and codes.

Has experience: Make sure the contractor has experience with and will use energy-efficient equipment as specified in the project designs.

Uses Portfolio Manager: Check whether the contractor is involved with ENERGY STAR, or benchmarking through Portfolio Manager. This will help your property remain consistent in its approach.

Availability and communication skills: Check the contractor's availability and make sure they have good communication skills.

Provides cost estimates in writing: Ask the contractor to provide a cost estimate in writing for any work they will do before signing any contract.

ENERGY STAR has an online list of tips on hiring contractors you can review.

E.1 Selecting a Contractor by Competitive Bid

To select a contractor by competitive bid, issue a Request for Proposal (RFP) to which prospective contractors interested in undertaking your project will bid for the job. ENERGY STAR has a sample RFP to assist you in preparing this document. When evaluating contractors' bids, pay attention to the proposed scope of work they describe; not all bidders will offer to undertake all tasks listed in the RFP.

Competitive bids are useful to property managers because they allow the manager to negotiate prices between multiple contractors at once. Your team can negotiate the proposed scope of work and proposed contract cost between contractors, encouraging the contractors to lower their prices and expand their proposed scope of work to remain competitive for your budget.

The downside is that competitive bids can take time, and your project must be large enough for the contractor to find it profitable. If your store wants to invest in many technologies, or to renovate a part

of your infrastructure, a competitive bid may be the most effective option. However, if you are planning to install a few specific technologies, selecting a contractor by qualification may make more sense for your energy team.

E.2 Selecting a Contractor by Qualification

When selecting a contractor by qualification, you should identify the contractors your team is interested in considering and assess their qualifications. Specifically, you should ask the questions listed in the introduction to this section and should interview past clients and references. Based on your team's evaluation of the contractor's responses and those of their past clients and references, you can decide whether to hire him/her to undertake your project.

Selecting a contractor by qualification may be preferable for some as it allows your team to work more intimately with the contractor to specify details of the work they will do and negotiate the extent to which they will assist your team. Unlike a competitive bid, selecting a contractor based on qualification does not allow you to negotiate prices or scope of work with multiple contractors simultaneously. Instead, your team will need to be familiar with the typical costs in your area for the types of projects your business is implementing.

E.3 Performance Contract - Using an ESCO

A performance contract is where a business hires an Energy Services Company (ESCO) to develop, install, finance, and verify energy efficiency improvements. In return for the ESCO assuming the up-front costs associated with the investments, the business agrees to give the ESCO a portion of its energy savings over a period specified in the contract. Usually, ESCOs will focus on larger energy use facilities to make it worth their expense. If your business has a smaller property, it will most likely use a local contractor rather than an ESCO.

A performance contract may be attractive from an immediate financial standpoint, but the level of control exerted by the contractor may be unfavorable. The contractor will be entitled to a portion of your energy savings for a contractually specified length of time after the energy project is completed, limiting the amount of money saved that you could use elsewhere. However, if your business does not have the necessary resources to implement projects or monitor energy management, a performance contract may be a convenient way to overhaul your property's energy-consuming equipment and practices.

E.4 Negotiating a Contract

The quality of your contracting experience largely will be determined by how you negotiate the contract. When drafting the contract, remember that this document will define all interactions between your team and the selected contractor. Therefore, the contract should address all stages of involvement, from planning and decision making, to documentation and monitoring of the investments after installation. If the contractor isn't going to monitor the performance of the equipment after it has been

installed, make sure that they agree to provide you with all the knowledge and resources necessary to allow your team to monitor, maintain, and manage the equipment over time.

E.4.1 CONTRACT SPECIFICS

Before you sign any contract, make sure the contract specifies the items listed below.

Contract Specifics to Confirm

- ✓ **Processes and Procedures:** Processes and procedures that the contractor agrees to undertake.
- ✓ **Activity Schedule:** A schedule of activities, including major milestones and due dates.
- ✓ **Contractor and Customer Roles:** The roles of team members, both of contractor personnel and your staff. This is very important to ensure that there is no duplication of effort which may result in higher costs for the project.
- ✓ **Sample Forms and Templates:** Sample forms and templates the contractor will use for documentation. Review these documents and ask for clarification of any parts of the forms that are not clear.

E.5 MANAGING A CONTRACTOR

When working with a contractor, the extent of your management responsibility will be defined in the contract. Usually, the day-to-day management of the project is the contractor's responsibility. As the customer, you should facilitate the contractor's work, and make sure that the contractor is adhering to the contract. Schedule regular meetings to check in with the contractor and track their progress. After the project is completed, remember to ask the contractor to provide documentation on how to maintain the installed equipment's performance, and how frequently maintenance of the equipment is recommended.

Appendix F – EPA Office of Small Business Programs

Thinking Small Business First: Professionalism, Innovation, Collaboration, Advocacy

Mission Statement

The mission of the U.S. Environmental Protection Agency's Office of Small Business Programs is to support the protection of human health and the environment by advocating and advancing the business, regulatory, and environmental compliance concerns of small and socio-economically disadvantaged businesses.

The Environmental Protection Agency (EPA) Office of Small Business Programs (OSBP), under the Office of the Administrator, advocates and fosters opportunities for direct and indirect partnerships, contracts, and sub-agreements for small businesses and socio-economically disadvantaged businesses. Additionally, OSBP furthers its overall small business advocacy through the Agency's Asbestos and Small Business Ombudsman, where the regulatory and environmental compliance concerns of small businesses are addressed. Below are the key responsibilities for each OSBP component.

Greening Small Business Responsibilities

- Smart Steps to Sustainability - A Greening Guide for Small Business.
- Conduit between small business and EPA's voluntary programs.
- Advocate for small business greening tools and resources.

Direct Procurement Key Responsibilities

- Acquisition review and approvals.
- Procurement data and performance measurement.
- Small business consultation, guidance, and advocacy.

Disadvantage Business Enterprise (Indirect Procurement) Key Responsibilities

- Developing and monitoring EPA's indirect procurement (through grants) policy and procedures.
- Providing outreach and training on indirect procurement within the agency and to the public.
- Providing technical and programmatic assistance to minority and women-owned businesses.

Asbestos Small Business Ombudsman Key Responsibilities

- Small business advocate in regulatory process.
- Asbestos and small business assistance hotline.
- Compliance assistance for small businesses that are heavily regulated.
- State 507 program for small business environmental assistance throughout the country.

Appendix G – Saving Water and the Soak Up the Rain Campaign

Hard surfaces such as building roofs, parking lots, patios, sidewalks and roads—also called impervious areas—prevent rainfall from infiltrating naturally into the ground. Urban development can result in large amounts of stormwater (also known as runoff) entering streams, lakes, rivers, wetlands, or oceans through storm drain systems. Stormwater can become polluted by oil and other contaminants on parking lots, pesticides and fertilizers on lawns, and soil eroded from bare ground.

Sustainable stormwater management—also known as green stormwater infrastructure or low impact development—can be used to absorb and treat stormwater close to where the rain falls, which reduces impacts to lakes, streams and estuaries. Filtering water through soil and vegetation helps clean it and reduces the amount of water and associated pollutants that flow untreated to storm drain systems and local waterways. Sustainable stormwater management practices are designed to protect and restore the landscape, so the developed areas have less of an impact on local and regional water resources.

Best practices for controlling stormwater can be integrated into existing features of the built environment (e.g., buildings, streets, parking lots, and landscaped areas). These practices are appropriate for most settings, from urban cores and suburbs to rural areas. The practices can include rain gardens, swales and conservation landscaping which are common natural solutions. These practices are designed to capture stormwater, filter it through vegetation and soils, and infiltrate it into the ground. Vegetated stormwater management practices that include green roofs can also be beneficial to wildlife when planted with native and locally adapted plants. Other practices such as downspout disconnection, permeable pavement and water harvesting can work in conjunction with these other tools to capture and filter or temporarily store rainwater on site to help protect stream channels from erosion and to reduce localized flooding. Conservation landscapes are also beneficial because they generally require less water, fertilizer and pesticides than do traditional landscapes. They also are designed to reduce power equipment use and associated fuel and energy consumption.

The creation of sustainable stormwater features can provide many benefits to your business and community. Some of these benefits include:

- Beautifying your small business grounds to make the property more attractive to staff and customers.
- Enhancing wildlife habitat, including habitat for butterflies, birds, pollinators, frogs and turtles, and small mammals.
- Improving water quality, reducing flooding in local streams and decreasing the risk of property loss.
- Providing cool shade to otherwise hot parking lots.
- Reducing costs associated with irrigation and other inputs (as highlighted by the WaterSense Program).

Soak Up the Rain is a stormwater public outreach campaign to raise awareness about the problem of polluted stormwater runoff and to encourage citizens, municipalities and others to take action to help reduce runoff and its costly impacts. We can all be part of the solution. Check out the website for outreach tools, how-to guides, and many other resources to learn more and get started.

ENERGY STAR® Action Workbook for Convenience Stores

updated March 2020

More information on ENERGY STAR Is available at www.energystar.gov

More information on the National Association of Convenience Stores is available at www.convenience.org