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Energy Savings Tips for Small Businesses: Home-Based Businesses

“What do Apple Computer, Hershey's, Mary Kay Cosmetics, and the Ford Motor Company have in common? These well-known corporations all started out as home-based businesses. More than half of all U.S. businesses are based out of an owner's home” (U.S. Small Business Administration). If your business is home-based, energy efficient projects will affect both your personal and professional bottom line. To get started, consider participating in *Home Performance with ENERGY STAR*, a program administered by the DOE in conjunction with the EPA. Participants improve their homes' energy efficiency with whole house solutions; typically yielding a utility bill savings of 20% or more. Home improvements fall into six general categories: 1) sealing air ducts and adding insulation; 2) improving heating and cooling systems; 3) sealing ductwork; 4) replacing windows; 5) upgrading lighting, appliances, and water heating equipment; and 6) installing renewable energy systems. You may choose to implement energy projects in one or more of these areas. Further, as your home is also your workplace, consider the top energy consumers in typical office spaces: lighting, cooling, and computers. The first projects you choose to implement may be in areas where home and business uses overlap (e.g. lighting). This document will help you take your home energy program one step further by providing additional guidance tailored for you that includes:



- How to profile your home's energy use
- Tips that can help you save energy and money
- Online resources to support your home-based business' energy program.



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PROFILING YOUR ENERGY USE

To profile your energy use, assess the energy efficiency of your home and see how it measures using the *ENERGY STAR Home Energy Yardstick*. This tool provides a simple assessment of your home's annual energy use compared to similar homes. By answering a few questions about your home, you can get:

- Your home's Home Energy Yardstick score (on a scale of 1 to 10)
- Insights into how much of your home's energy use is related to heating and cooling versus other everyday uses like appliances, lighting, and hot water
- Links to guidance from ENERGY STAR on how to increase your home's score, improve comfort, and lower utility bills
- An estimate of your home's annual carbon emissions.

Once you have your Home Energy Yardstick score, you will be able to determine next steps. If you have a very low score, you may consider a home energy audit and/or participation in the Home Performance program. You may also choose to hire a contractor, or implement energy efficient projects yourself.

TIPS FOR ENERGY SAVING AT HOME

Insulation

Air that leaks through your home's envelope—the outer walls, windows, doors, and other openings—wastes a lot of energy and increases your utility costs. A well-sealed envelope, coupled with the right amount of insulation, can make a real difference on your utility bills. Most homes in the U.S. don't have enough insulation and have significant air leaks. In fact, if you added up all the leaks, holes, and gaps in a typical home's envelope, it would be the equivalent of having a window open every day of the year!

- **Seal and insulate your attic.** Air sealing in the attic is generally a challenging do-it-yourself project, but the benefits can be substantial.
- **Seal and insulate your basement or crawl space.** Sealing air leaks and adding insulation in the basement are generally considered moderate to difficult do-it-yourself projects; if you're not comfortable taking on this project yourself, there are many qualified contractors who can help you get the work done.

Ductwork

In houses with forced-air heating and cooling systems, ducts are used to distribute conditioned air throughout the house. In a typical house, about 20 to 30 percent of the air that moves through the duct system is lost due to leaks, holes, and poorly connected ducts. The result is higher utility bills and difficulty keeping the house comfortable, no matter how the thermostat is set.



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- **Seal your heating and cooling ducts.** Sealing and insulating ducts can improve the efficiency of your heating and cooling system by as much as 20 percent and sometimes much more. See the *ENERGY STAR Duct Sealing brochure* for more information.

Heating and Cooling Systems

Although heating and cooling systems provide a useful service by keeping you and your employees comfortable, they also account for a significant portion of a home's energy use; as much as half of the energy used in your home goes to heating and cooling. For more information, see how to *Heat and Cool Efficiently*. Here are some tips you can employ in your home:

- **Change your air filter regularly.** Check your filter every month, especially during heavy use months (winter and summer). If the filter looks dirty after a month, change it. At a minimum, change the filter every three months. A dirty filter will slow down air flow and make the system work harder to keep you warm or cool—wasting energy.
- **Tune up your HVAC equipment yearly.** Just as a tune-up for your car can improve your gas mileage, a yearly tune-up of your heating and cooling system can improve efficiency and comfort. Use the ENERGY STAR Maintenance Checklist as a guide.
- **Install a programmable thermostat.** A programmable thermostat is ideal for office spaces that are unoccupied during set periods of time throughout the week. Through proper use of pre-programmed settings, a programmable thermostat can save you about \$180 every year in energy costs.

Windows

Replacing old windows with ENERGY STAR certified windows lowers household energy bills by 7 – 15 percent. Lower energy consumption also reduces greenhouse gas emissions from power plants and shrinks a house's carbon footprint. You may also:

- **Caulk and weather-strip around windows and doors.** Check for signs of air leakage around windows and doors. Then use caulk and weather-stripping to stop the leaks.
- **Use drapes to stay comfortable.** During cold weather, take advantage of the sun's warmth by keeping drapes open on south facing windows during daylight hours. To keep out the heat of the summer sun, close window shades and drapes in warm weather.
- **Make sure your windows and doors are closed** when the air conditioning or heat is on to keep the warmed or cooled air in the house.
- **Replace your screens with storm windows.** During the winter months, replace screens with storm windows to provide an extra barrier to the cold outside air. This will help create a more comfortable living space inside your home.



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Lighting, Appliances, and Water Heating Equipment

Lighting products that have earned the ENERGY STAR deliver exceptional features, while using less energy. ENERGY STAR certified lighting products combine quality and attractive design with the highest levels of energy efficiency available today. ENERGY STAR certified fixtures typically use one-quarter the energy of traditional lighting and distribute light more efficiently and evenly than standard fixtures. In addition to bulbs and fixtures themselves, your home office can employ lighting controls and/or sensors to reduce energy use.

Water heaters are the second highest source of energy usage in the home. ENERGY STAR certified water heaters use 14 – 55% less energy than equipment that meets the minimum federal standard. Here are some lighting and water heating tips:

- **Replace incandescent light bulbs with ENERGY STAR certified LEDs or CFL bulbs.** The ENERGY STAR label lets you know this bulb is independently certified and has undergone extensive testing to ensure energy savings and performance promises.
- **Choose ENERGY STAR light fixtures.** If every U.S. household replaced the five most frequently used light fixtures with ENERGY STAR certified fixtures, it would prevent greenhouse gas emissions equivalent to those from 10 million cars.
- **Dim the lights.** Dimmers are available for both LEDs and CFLs (ensure that you use dimmable CFLs). Daylight dimmers are special sensors that automatically dim room lights based on the amount of free and natural daylight available.
- **Choose an ENERGY STAR certified Electric Heat Pump** or Gas Storage water heater.
- **Insulate your electric water heater.** Wrap your water heater in an insulating jacket. Increased insulation slows heat loss through the walls of the water heater. Even if your water heater is in a heated part of your home, energy loss through the walls of the water heater can be significant.
- **Lower your water heater temperature.** Set your water heater thermostat at 120 degrees F or lower. This way you'll reduce the amount of energy it takes to produce and maintain your hot water by not overheating it.

Computers and Other Office Equipment

ENERGY STAR certified computers deliver substantial savings over standard models. Desktops, integrated desktops, notebook (laptop) computers, workstations, and small-scale servers are all eligible to earn the ENERGY STAR. Check out ENERGY STAR computers for consumers to find ENERGY STAR certified computer specifications and buying guidance. You can also estimate your savings potential for computers and laptops using the ENERGY STAR Office Equipment Savings Calculator. Here are some tips to consider for computers and other equipment in your office:



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- **Always buy ENERGY STAR certified products.** The ENERGY STAR mark indicates the most efficient computers, printers, copiers, televisions, windows, thermostats, ceiling fans, and other appliances and equipment.
- **Use power management features:** place computers (CPU, hard drive, etc.) into a low-power “sleep mode” after a designated period of inactivity. You can also purchase a commercial software power management package.
- **Print double-sided pages;** much more energy is used in the manufacturing and distributing of paper than the actual printing at your office.

Install renewable energy systems

Once you have made energy efficiency improvements to your home, you may consider additional measures, such as installing solar panels or a solar hot water system. An ENERGY STAR certified solar water heating system can cut your annual hot water costs in half, and is generally designed for use with an electric or gas back-up water heater.

RESOURCES AND LINKS

This section includes online resources that can help your home-based business learn more about office-specific energy use and energy efficiency.

- Home Performance with ENERGY STAR:
www.energystar.gov/index.cfm?fuseaction=hpwes_profiles.showSplash&s=mega
- ENERGY STAR Home Energy Yardstick:
www.energystar.gov/index.cfm?fuseaction=HOME_ENERGY_YARDSTICK.showGetStarted&s=mega
- ENERGY STAR Energy Savings at Home: www.energystar.gov/campaign/waysToSave
- ENERGY STAR Maintenance Checklist:
http://www.energystar.gov/index.cfm?c=heat_cool.pr_maintenance
- ENERGY STAR Home Energy Audits:
www.energystar.gov/index.cfm?c=home_improvement.hm_improvement_audits
- ENERGY STAR Recommendations for Finding a Contractor:
www.energystar.gov/index.cfm?c=home_improvement.hm_improvement_contractors
- ENERGY STAR Attic Air Sealing Project:
www.energystar.gov/index.cfm?c=home_sealing.hm_improvement_attic
- ENERGY STAR Basement and Crawlspace Air Sealing and Insulating:
www.energystar.gov/index.cfm?c=home_sealing.hm_improvement_basement
- ENERGY STAR Heating and Cooling Guide:
http://www.energystar.gov/ia/partners/publications/pubdocs/HeatingCoolingGuide%20FINAL_9-4-09.pdf?0cbe-cc73



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- ENERGY STAR Duct Sealing brochure:
http://www.energystar.gov/ia/products/heat_cool/ducts/DuctSealingBrochure04.pdf?0cbe-cc73
- ENERGY STAR Rebate Finder: <http://www.energystar.gov/rebate-finder>
- ENERGY STAR Office Equipment Savings Calculator:
www.energystar.gov/sites/default/files/asset/document/Office%20Equipment%20Calculator.xlsx
- ENERGY STAR: Activating Power Management Software:
www.energystar.gov/index.cfm?c=power_mgt.pr_power_mgt_comm_packages
- ENERGY STAR Qualified Solar Water Heaters:
http://www.energystar.gov/index.cfm?c=solar_wheat.pr_savings_benefits
- Renewable Energy Ready Home Solar Site Assessment Tool:
<https://www.energystar.gov/index.cfm?c=rerh.assessment>
- WaterSense Homes Program:
http://www.epa.gov/watersense/new_homes/index.html
- SBA Energy Efficiency for Home Based Businesses:
www.sba.gov/content/energy-efficiency-home-based-businesses
- Lawrence Berkeley National Laboratory's Home Energy Saver: hes.lbl.gov/consumer/