

“Demonstrate, Educate and Promote”

Energy Savings

Did you know that a typical U.S. family spends about \$2,200 a Year on Home utility bills? Did you know that a medium sized U.S. restaurant (\$2,000,000 Yearly sales approx.) spends from \$85,000 up to \$100,000 a Year on utility bills?

Unfortunately, a large portion of that energy is wasted; also each year, electricity generated by fossil fuels for a single home puts more carbon dioxide into the air than 2 average cars!

The good news is that there is a lot you can do to save energy and money at your Business, Home and in Transportation.

The key to achieving those savings is to take a whole approach; see your Business, Home or Transportation as an entire energy system with interdependent parts.

For example, for heating systems, if you choose a furnace which uses natural gas and connects to a network of ducts, you have a heat-delivery system that starts with a furnace and delivers heat throughout the inside of your building using a network of ducts and uses a thermal envelope that is sealed and insulated (walls, attic, basement, crawl space, floors, windows, doors, ducts, vents,...).

Taking a whole approach to saving energy will ensure that the new habits you will promote and dollars you will invest are done and spent wisely!

Energy-efficient buildings and vehicles not only make you and the people around you more comfortable but reduce your GHG emissions (green house gas) that is both Ecological and Economical.

Therefore, your whole approach it is Ecolonomical!

Let's analyze this subject by category:

Electricity:

Depending on the nature of your Business, investigate and quantify how your electric usage is distributed. In general, we use electricity for lighting, appliances, equipment, cooling, HVAC, computers and other office devices, etc...

This is such a very large and important subject. Additionally, a lot of electrical equipment uses other sources of energy and utilities so that you will need to address each one of them specifically. For example, for "Electric Lighting" you will need to refer to this specific section in order to get more information and details; for a Restaurant Dish Machine which uses more than a dozen of items, you will need to refer to the Cleaning Equipment section.

Light Green Tips:

Do

- . Eliminate phantom electrical loads**
- . Unplug appliances not in use**
- . Set computers to energy saver mode**
- . Lease an "Efficient Electronic Sign" for your**

Business

- . Turn off lights and appliances when not in use**
- . Use the power-management software on your computer.**

Dark Green Tips:

Do

- . Buy “Energy Star” rated appliances for your Home
- . Buy “Energy Star” rated equipment for your Business

Natural Gas:

It is considered a clean source of energy when the equipment that is using it is in good working condition.

Light Green Tips:

Do

- . Use your equipment only when necessary
- . Keep your equipment in very clean condition
- . Contract the services of a professional maintenance company

Dark Green Tips:

Do

- . Whenever feasible, invest in a high efficiency option

Remember: Saving gas is just about creating new habits!

Other Non-Renewable Sources of Energy:

There are several environmentally friendly, relatively non-polluting means of generating electricity; namely [geothermal power](#), [hydro power](#), [wind power](#), [solar power](#), [tidal power](#) and [wave power](#). However,

whether or not one of these causes significant pollution, there are other considerations that need to be taken into account when deciding if an energy source is environmentally friendly. Among these are: How much water does a given method use and take out of the fresh water resources of (a nation, a region, etc.)? How much land, especially agricultural land, is compromised or used up in this method? How much wildlife habitat is compromised or used up? Are traditional uses affected for local indigenous peoples? What is the footprint of the generating plant? What is the footprint of the distribution/transmission method?

Light Green Tips:

Do

- . Lower your water heater temperature setting to “warm” or 120 F whenever possible
- . Review the option of installing a hot water on demand water heater

Dark Green Tips:

Do

- . Invest in Thermal Solar Panels for heating your hot water; you will need it all day long
- . Have a complete building audit performed by a professional “alternative sources of energy” company

Renewable and Clean Sources of Energy:

A lot of new companies are emerging with new products. Research the options for your own region,

because every region has its own opportunities and sources of energy.

Light Green Tips:

Do

- . Research the options that you have in your area and obtain first hand testimonials

Dark Green Tips:

Do

- . Have a complete building audit performed by a professional “alternative sources of energy” company

Electric Lighting:

For each space, list:

- . Location of the lights
- . Type of fixture
- . Number of fixtures
- . Number of lamps in the fixture
- . Specs on the lamps and ballasts (brand, wattage)

Then add up the wattage to calculate net savings after installing CFLs.

Light Green Tips:

Do

- . Take advantage of natural day lighting
- . Keep light fixtures clean

- . Use task lighting in the office and whenever appropriate
- . Turn out lights and music in unoccupied rooms
- . Set up “Lights on and off” policy for openers and closers; post where visible next to each switch, employee information board, employee schedules, office door, where appropriate and necessary
- . Mark dimmers to appropriate settings, day and night, seasonal, hours of operation settings, etc...; do not let employees guess, make the decision with them and when a decision has been made everyone will stick to it
- . Cleaning Crew: They don’t need to turn on every light; setup lighting zones to match cleaning habits and turn on zone when needed
- . Turn off lights in walk-in fridge and freezers, dry storage areas and other non frequently used rooms (electrical room, boiler room, ...) when not in use
- . Switch the light bulbs from incandescent to compact fluorescent ones when available and remove altogether unnecessary light bulbs; in my last Restaurant I used up to 2.5 times fewer kilowatts for lighting after those changes!
- . Only turn on necessary lights at the appropriate time (30 min before opening to the public for FOH; mark and use only the Kitchen ones for BOH; use and check timers for the outside and decorative ones and have them on only when you are open)

Dark Green Tips:

Do

- . Install motion sensor switches whenever appropriate, especially in rooms used frequently by the public (Restroom, Closet for hanging coats, Ice Machine room, Vendor Machine room, Landry room, Bicycle room, etc.)

Electric Signage:

This is the perfect example where electricity and marketing are linked together. It has been an icon of the “American way of life” after World War II, to see very large signs next to every major road. They definitely bring customers in but they are expensive. Also they use a large amount of electrical energy to highlight or light up. So if you want to get one, just go to a greener option immediately. If not, be wise on how to use them and reprogram the timer whenever available.

Light Green Tips:

Do

- . Program the timing wisely
- . Lease an “Efficient Electronic Sign” or LED for your Business

Dark Green Tips:

Do

- . Buy an “Efficient Electronic Sign” for your Business
- . Get an LED Sign for Commercial usage

Check with a “Lighting Expert” on emerging lighting technologies like:

- . Compact Fluorrescents – CFL
- . Light-Emitting Diode – LED : A light-emitting diode (LED) is a semiconductor light source. LEDs are used as indicator lamps in many devices, and are increasingly used for lighting. Introduced as a practical electronic component in 1962, early LEDs emitted low-intensity red light, but modern versions are available across the visible, ultraviolet and infrared wavelengths, with very high brightness.

The LED is based on the semiconductor diode. When a diode is forward biased (switched on), electrons are able to recombine with holes within the device, releasing energy in the form of photons. This effect is called electroluminescence and the color of the light (corresponding to the energy of the photon) is determined by the energy gap of the semiconductor. An LED is usually small in area (less than 1 mm²), and integrated optical components are used to shape its radiation pattern and assist in reflection. LEDs present many advantages over incandescent light sources including lower energy consumption, longer lifetime, improved robustness, smaller size, faster switching, and greater durability and reliability. However, they are relatively expensive and require more precise current and heat management than traditional light sources. Current LED products for general lighting are more expensive to buy than fluorescent lamp sources of comparable output.

- . Cold-cathode Fluorescents – CCFL
- . High-intensity Fluorescent – HIF
- . High Pressure Sodium – HPS
- . Metal Halide – MH
- . Induction Lighting (Invented in 1890's!)
- . Organic LEDs
- . wireless lighting controls
- . incentives and tax credits

For more information go to www.lightingguide.com

Non Electrical Sources of Lighting:

Sunlight can be used only during the day and unfortunately most of the Hospitality Businesses are open to the public at night. Depending on your Business

and Hours of operation, make an analysis and decide what is the most cost effective for you.

Light Green Tips:

Do

. Maximize your lighting by using daylight as much as possible

Dark Green Tips:

Do

. Invest in roof mounted equipment which capture the sunlight and bring it inside your building

Other General Tips:

Light Green Tips:

Do

. Know your electric rate and manage the building's electric load to take advantage of the rate structure (e.g. turn off equipment when rates are higher)

. Lower thermostat temperature on winter nights and when your building is not in use (50° F.)

. Wear an extra layer of clothing during the winter and lower the thermostat a few degrees (60° F. to 68° F.)

. Don't block heating registers with furniture, carpet or drapes

. Open curtains and shades during the winter so the sun can warm your building and close them during the summer to keep your building cooler

. Open windows on summer evenings to bring in cool outdoor air and close them during the day to keep cool air inside

- . Set your air conditioner's temperature higher (75° F.) and use other means to keep your building cool (portable fans, ceiling fans)
- . Close fireplace damper and doors when not in use
- . Lower water-heater temperature to the lowest comfortable setting (120° F.)
- . Take shorter showers (3 minutes maximum)
- . Turn off faucet while shaving or brushing teeth
- . Wash clothes in cold or warm water and rinse in cold water
- . Wash full loads of clothes. When washing smaller loads, select appropriate water level setting
- . Dry clothes on a clothesline.
- . Clean dryer lint filter after every load. Make sure vent pipe is not kinked or blocked
- . Use a microwave oven for warming or reheating food
- . Run the dishwasher only when full, using the energy-saver cycle or no-heat drying
- . Make sure the air flow around your refrigerator is not obstructed
- . Consider recycling a second refrigerator or freezer through your local Utilities' Refrigerator/Freezer Recycling Program
- . Borrow an "appliance meter" from your Utilities dept to learn how appliances use electricity
- . Turn off overhead and task lights when not in use
- . Take advantage of daylight from windows and skylights
- . Turn off printers, copiers, coffee machines, and other equipment at the end of the day
- . Activate sleep mode on computers (see ENERGY STAR® for details)
- . Use properly set timers or photo sensors for outdoor lighting
- . Use an ENERGY STAR programmable thermostat that automatically adjusts temperature settings to

scale back on heating or cooling while you're away or sleeping

- . Ensure programmable thermostats are programmed correctly
- . Install a locking cover to prevent tampering
- . Replace filters, clean evaporator and condenser coils and verify proper operation of the economizer on air handlers
- . Replace standard light bulbs with ENERGY STAR compact fluorescent bulbs. For greatest savings, start with light fixtures that are turned on the longest each day
- . Install occupancy sensors in areas where lights frequently are left on when no one is present (e.g.: bathrooms, storage rooms);
- . Replace incandescent exit signs with LED or photo luminescent exit signs
- . Seal obvious air leaks. Make sure doors and windows have tight seals
- . Install an insulation blanket on your water heater. Be sure to follow manufacturer instructions carefully
- . Insulate pipes that connect vertically to your water heater
- . Install low-flow showerheads and faucet aerators
- . Use compact fluorescent light bulbs. For greatest savings, start with lighting fixtures used most often
- . Install plastic covers over single-pane windows during the winter
- . Block air flow through your fireplace when not in use
- . Install storm windows over single-pane windows
- . Use solar screens over windows with excess sun
- . Replace windows with double-pane, low-e windows. Specify "solar-control" windows in locations where windows are exposed to excess sun
- . Purchase efficient ENERGY STAR appliances when replacing old ones

- . Replace failed electric motors with NEMA Premium® energy-efficiency motors as determined by the National Electrical Manufacturers Association
- . Replace inefficient Shaded Pole fractional horsepower motors and Permanent Split Capacitor (PSC) motors with higher efficiency Electronically Commutated Permanent Magnet (ECPM) motors
- . Add insulation, starting in locations where there is none
- . Seal spaces where mechanical, plumbing and electrical wires and pipes penetrate floors, walls and roofs
- . Seal ductwork and rebalance the HVAC system
- . Seal air leaks by checking windows, doors and exterior walls
- . Seal and insulate air leaks in attic ductwork and crawl spaces
- . Always use a permanent “duct mastic” material for sealing—never use “duct tape”
- . Close crawl space vents, and cover the crawl space floor with plastic (at least 6-mil) to reduce moisture coming from the soil
- . Insulate attics and crawl space walls
- . Insulate basement walls
- . Blow cellulose insulation into uninsulated frame walls. Conduct a lighting upgrade for fixtures containing T-12 lamps and magnetic ballasts. Replace with T-8 lamps and electronic ballasts

Dark Green Tips:

Do

- . Schedule a home energy rating for a professional assessment of energy use and savings potential
- . Install a computer-based Energy Management System (EMS) to control heating, ventilation, air conditioning equipment and lighting systems

- . Apply for a Zero Interest Loan for Conservation Help (ZILCH) to make higher-cost upgrades
- . Replace high-bay high-intensity discharge (HID) lighting with high-intensity fluorescent (HIF) fixtures
- . Install a refrigerant heat-recovery system to heat domestic hot water if large refrigeration equipment is present

- . Install ENERGY STAR roofing material with high reflectance to reduce cooling load
- . Replace older appliances with ENERGY STAR® products
- . Replace older water heaters, air conditioners, furnaces and boilers with efficient ENERGY STAR models
- . Replace appliances, including washing machines, dishwashers and refrigerators with ENERGY STAR models

- . Plant fast-growing vines to block unwanted summer sun (results in months)
- . Plant shade trees to block unwanted summer sun (results in years)
- . Plant trees on east, southeast, southwest and west exposures to reduce solar heat gain and reduce glare through windows

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“Because Ecology means Business”