ENERGY MEASURES BY COST

1. *NO COST* MEASURES TO REDUCE ENERGY BILLS AND GREENHOUSE GAS EMISSIONS

•Turn off lighting in unoccupied areas and where daylight is sufficient. Save 8 - 20% of lighting energy.

• Make sure lighting controllers (time clocks, motion sensors) are properly set and working properly. Make sure outdoor lighting is off when not needed. Save up to 3% lighting energy.

•Keep light bulbs and fixtures clean. Dirt can reduce light intensity by up to 25%.

• Keep doors and windows closed while heating or cooling systems are running. Save up to 50% of heating/ cooling energy.

• Set thermostats to 68°F for daytime and 55°F at night. Save 2% of heating energy per each degree of setback

• Check equipment for proper operation, maintain fans, pumps, pads, filters. Save ½ to 1% of heating/cooling energy

• Shut off pilot light in gas furnace during the off-season

•Turn down your water heater to 120°F. You should not have to add much cold water for a comfortable shower. Save up to 15% of heating energy

•Turn off water heater when away for more than a few days. Turn heater to Pilot or to Off.

•Showers use less water than baths. A 5 minute shower uses up to 50% less water than a bath. If you must take a bath, use only 3" of water.

•Avoid running the water while shaving, brushing teeth, doing dishes. Rinsing dishes in a sink partially filled will reduce rinse water as much as 80%.

• Set cooling thermostat at 78°F. When night time temperature is cool, use ventilation only..

• Shut off fans during unoccupied periods. Save up to 5% of cooling energy.

•Check outside air economizers for proper operation. Save up to 2% of cooling energy. Broken economizers can waste huge amounts of energy.

•In winter, open shades during the day and close them at night. In summer, closing blinds exposed to direct sunlight saves 20-30% of cooling energy.

• Choose clean electric power. Switch to a 50-90% renewable energy source. About 1/3 of U.S. electricity comes from polluting coal-fired plants. And such plants are the single largest source of greenhouse gas emissions.

•Clean refrigerator coils (if exposed) regularly, and see that rubber door seals are tight. Dirty coils hinder the rejection of heat and make the compressor work harder.
•Unplug second refrigerator unless you use it.

•Select your dishwasher's no heat air drying cycle. Avoid Rinse and Hold cycle. Run dishwasher only when full. (If it takes too long for the washer to fill up, you could have probably washed those dishes by hand and saved energy.) Dishwashers account for about 2% of your electric/gas bill, most of it for heating water or air.

•Use your microwave for as many tasks as feasible. It uses 1/3 the energy of a cook-top or oven (and won't heat up the place in summer). Microwaves take less time to heat food, which is why they take less energy to run.

• When cooking small to medium amounts of food, use a microwave, toaster oven or crock-pot instead of the oven.
• If you have two ovens, use the smaller one whenever possible.
• For soups and stews that require long cooking time, use a crock pot.
• With electric cook tops, match the pan size to the element size. A 6" pot on an 8" burner will waste 40% of the burner's heat.
• Unless you are baking breads or pastries, reduce or eliminate preheating the oven.
• Cook double or triple portions and refrigerate the extra food. It takes less energy to reheat food than to cook it (and you can do it in the microwave).
• If you have a self-cleaning oven, run the cleaning cycle right after baking. The heat of the oven will help minimize the heat needed for the cleaning.
• Cover pans to cook food, heat water faster.
• Don't open the oven during cooking time. Use a timer/ thermometer.

•.Rinse in cold water. Clothes will come out just as clean and often less wrinkled. Cold water rinsing saves as much as 50% of the energy required.
•Avoid over-drying clothes They should dry in 40-60 minutes or less. Some new dryers have moisture sensors that turn the dryer off when clothes are dry.
• Clean your lint filter after every load. It takes longer to dry clothes with a clogged filter.
• Put a dry towel in the dryer with the wet load. It will absorb moisture and the load will dry faster.

•Turn off computers, monitors, printers and copiers every night and weekend. Turn off/unplug coffee machines, desk lamps and fans. Activate office equipment's "sleep mode" feature. Reduce building energy use by up to 10%.
•Conserve paper. Don't print your e-mails unless necessary. Print and photocopy on both sides. Print drafts on used paper with a blank side. Recycle all paper. Up to 40% saving on paper use.

• To reduce use of toner and ink, set printer for "draft" quality for all but the most quality-demanding work.
•To reduce solid waste stream, recycle used inkjet printer cartridges. Manufacturer recycle and UPS delivers them at no cost to you.
• Pay bills on line: reduce paper use and unwanted advertisements.
• Block junk mail: call 1-888-5OPT-OUT. Reduces paper use, solid waste stream.
•Reuse packing materials (envelopes, peanuts, bubble wrap, cardboard). Return to nearest shipper if you can't use. Reduce energy use at manufacturing point and reduce waste stream.
•Use computer's sleep mode (Right click On Desktop, click on Properties, Select Screen Saver tab, then click Power button). Reduces power use while computer is not in use.
•Use a laptop computer instead of a desktop. Laptops use a fraction of the energy.

• Practice "grass recycling": leave grass clippings on the lawn where they will break down and fertilize the lawn.
•Water early to minimize loss due to evaporation. (More than half can be lost.) Use rainwater to water the garden.

•Consider how your purchases contribute to household waste. Buy more durable goods, less disposables. Ask for products with less packaging.
•Recycle aluminum and tin cans, glass bottles, plastic, cardboard, newsprint and waste paper. You can reduce your carbon emissions by as much as 850 lbs./year.

•Leave the car home when you can: walk, bike, carpool, use public transit. Save gas and emissions, plus exercise is good for you.
•Combine errands for fewer trips. Cold starts use twice the fuel as a multi-purpose trip. Trip planning ensures warm starts and fewer miles driven.
•Use the recommended oil: improve gas mileage by 2%.
•Clean out your car, especially of heavy items. Reducing overall weight can save 2% for each 100 lbs.
•Remove roof racks and travel containers when not in use. Reduce wind resistance and improve gas mileage by up to 5%.
•Don't idle. Idling for 10 minutes a day will produce a quarter ton of CO_2 emissions a year and can cost $65 in wasted fuel. Except in traffic, turn off the engine if you stop for more than 10 seconds.
•Use air conditioning sparingly. Running the A/C can increase fuel consumption by as much as 20%. Park in the shade if possible to keep the car cooler. This will also reduce evaporation of gasoline due to the heat.

2. *LOW COST* MEASURES TO REDUCE ENERGY BILLS AND GREENHOUSE GAS EMISSIONS

•Arrange for a home energy audit. It will show you areas where energy efficiency can be improved and help you prioritize efficiency measures in order to maximize their impact on your energy budget.

•Replace incandescent light bulbs with Energy Star compact fluorescent bulbs: save 70-90% of lighting energy.
•Replace lighted signs (e.g. Exit signs) signs with light emitting diode (LED) units: save 70-90% of lighting energy.
•Reduce general overhead lighting by de-lamping; use task lighting where needed: save 25-50% of lighting energy.
•Outdoor timers can cut your energy consumption in half. Motion detectors are another way to go. They switch on the lights while needed and shut them off automatically a few minutes later.

•Install programmable thermostats. They will reduce the temperature when no one is at home or at night when lower temperatures are adequate.
•Install locking covers on thermostats to prevent tampering. Save 10-70% of space heating energy.
•Perform scheduled maintenance on burners, air conditioner coils, replacing air filters and checking air ducts and pipe insulation for damage. Save 10-30% of fan energy and up to 10% of space conditioning energy.

•Use fans instead of air conditioning. A ceiling fan can make a room feel 6-7° cooler.
•Using fans in conjunction with air conditioning will let you raise thermostat, saving energy and money.

•Ensure that doors and windows seal tightly and remain closed: save up to 50% of space conditioning energy.
•Use caulking and weather stripping to seal air leaks. A third of a home's heat loss is through windows and doors. Getting rid of drafts through cracks can reduce heat loss by 20%.
•In outside walls install behind electric outlet cover plates foam gaskets made for the purpose.

•Insulate your water heater and water pipes to reduce heat loss. This can save up to 30% of heating energy.

•Eliminate phantom loads. Many appliances use power when not in use. Plug them into a power strip and turn the strip off when not needed.
•Use solar powered calculators.
•Use recycled office paper. Recycled paper manufacturing is far less energy intensive than new paper made from pulp. And it saves trees.
•When purchasing a laser printer, look for energy efficient features. Printers with an automatic standby feature can save up to 65% of their operating energy.

•Plant a vegetable garden. On average, produce is shipped over 1,400 miles to supermarket. Save on shipping energy, enjoy fresh food, save money.
•Collect rainwater for the garden. For every inch of rain that falls on a 100 sq. ft. roof area, collect about 60 gallons of water. Conserve pumping energy, gain clean water.
•Compost kitchen waste, shredded paper. More than 20% of all landfill waste is compostable. Save on fertilizer.
•Use a hand mower or electric mower. Save on emissions, noise. Running an electric motor is the equivalent of using $1.00/gallon gasoline.

•Choose clean power. Switch to a 50-90% renewable energy source. More than a third of U.S. electricity is generated in polluting coal fired plants. And power plants are the single largest source of heat trapping gases.

•Check your air filter; replace as needed: improve gas mileage by up to 10%
•Keep your vehicle well maintained. A poorly maintained engine can consume 50% more fuel.
•Use ethanol-blended gasoline. If all U.S. gasoline contained 10% ethanol, we could reduce our greenhouse gas emissions by 4 million tons or more per year.
•Use a block heater when the temperature drops below freezing. It will warm the oil and the engine coolant, making the engine easier to start, improving fuel economy by up to 10%. Cold engines produce 50 to 100 times more carbon monoxide, hydrocarbon and nitrous oxide emissions in the first minute of operation than pre-warmed engines.

3. ENERGY MEASURES TO REDUCE ENERGY BILLS AND GREENHOUSE GAS EMISSIONS *REQUIRING INVESTMENT*

•Install insulation in exterior walls, ceilings and wall cavities: reduce heat loss or gain by 60-90%. Insulating your basement and attic alone can yield a 30% energy saving.

•Consider outdoor shading of sun-exposed glass in summer (deciduous trees, awnings, overhangs, plastic or bamboo shade rolls) and save 5-15% of cooling energy.

•Replace chillers, water heaters, heating and cooling equipment, appliances, lighting: save 5-20% of energy used

•Install Energy Management Systems (EMS) to control heating, cooling and lighting: save 5-20% of energy used

•Buy the right sized Monitor heater. The larger the unit, the more energy it will consume. The exception is an LCD monitor. Compare labels before buying.

•Save 10-20% of heating energy by replacing your old furnace with an Energy Star qualified furnace with an annual fuel efficiency (AFUE) rating of 90% or greater. Depending on the efficiency of the old furnace, payback is about 7 years.

•Install a ceiling fan. Change the direction of the fan to push warm air down in winter. Choose a model with compact fluorescent bulbs if light is needed. The saving: 20-50% of heating or cooling energy.

•Install occupancy sensors that shut off lights when room is not in use and save up to 20% of lighting energy

•Retrofit T12 lamps and ballasts with T8 lamps and electronic ballasts and save 20-30% of lighting energy

•If current windows are single glazed, install interior or exterior storm windows. Windows account for up to 25% of a house's heat loss or gain. The added glazing can cut this loss or gain by 50%.

•Look for Energy Star labels on new windows and sliding glass doors. They reduce energy losses and condensation. The following features can reduce your energy consumption and cost: multiple glazings, the right thickness of air space between glazings, low conductivity gas fill, tinted glass coatings, low emissivity (low-e) coatings, edge spacers.

•Save up to 5% of heating energy by keeping window curtains open during the day in winter to allow passive solar energy to enter. Close curtains after dark to keep the heat in.

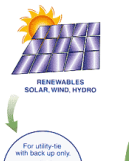
•Replace exterior doors without insulation or in poor repair with insulated core doors Failing this, at least add storm doors.

•Install a solar water heater (Cost $3,000-10,000). Benefit from state and federal rebates and save up to 80% of water heating energy, carbon emissions.
•Install an on-demand, tankless water heater. You will have all the hot water you need, without having to keep a tankful of water heated at all times. These units cost more, but pay for themselves in energy savings. Combined with a solar water heater, even smaller sized units can serve as an efficient backup system.

•Install a resource-efficient clothes washer. Horizontal axis washers use a lot less energy than vertical axis ones. Look for a high modified energy factor (MEF), a measure of tub capacity and energy use. Stricter federal standards took effect January 2007. Clothes washers account for 22% of household water consumption, or about 13,000 gallons of water per year. An efficient unit saves water and reduces the load on local water supply, sewer and septic systems.

•Keep refrigerators, freezers away from heat sources (direct sunlight, furnace vents, radiators, clothes dryers, stoves, ovens, dishwashers).
•Refrigerator temperature should be set between 35 and 38°F and freezer compartments at 0°F for maximum efficiency and safety.
•Buy Energy Star rated units. A 2004 model uses less than half the electricity of one built in 1994. Generally, smaller refrigerators use less energy. Pick the right size for your needs.

•All new gas ranges come with electric ignition instead of energy wasting pilot lights. Electric units come in a great variety of sizes and efficiencies. Look for Energy Star labels and compare energy requirements.



•Install a photovoltaic system ($12,000- 30,000). Save up to 100% on your electric bill, carbon emissions. Benefit from state and federal rebates.
•Use solar powered yard tools. Eliminate gasoline use.

•Make your next car a hybrid or electric. Hybrids get up to 70 miles to the gallon; electrics run on $1.00/gallon gasoline-equivalent electricity from a plug on the garage wall. Modern electrics have a range between charges of up to 100 miles. (The average American drives 29 miles a day.)
•Buy the most fuel efficient vehicle that meets your needs. Check the fuel consumption information on the window label. The greater the fuel efficiency the lower the fuel cost and the greenhouse gas emissions. Www.fueleconomy.gov lists gas mileage estimates and more for all 1985-2007 models.
•Don't buy more than you need. Four-wheel drive, all-wheel drive, larger engine size, vehicle weight and tire size all influence how much fuel a vehicle uses. Consider the four cylinder instead of the six cylinder model. Buy only what you truly need.