

SAVING ENERGY DOLLARS



No Cost / Low Cost Solutions
for the Small Business



**IDAHO
POWER®**

An IDACORP Company

Dear Reader,

Operating a small business is a time-intensive responsibility. Your free moments are few and far between.

We thought you would appreciate this brief guide to no cost and low cost ways to save on your energy bills.

These proven energy saving measures can help you make your business more energy efficient, boost productivity, increase the comfort of customers and staff, and benefit your bottom line.

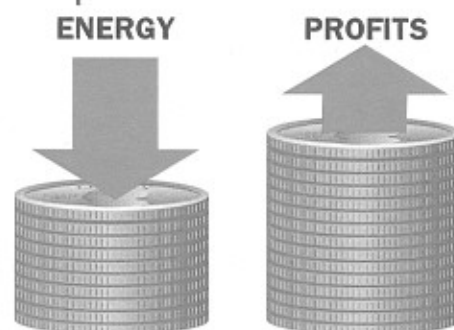
We hope you find this booklet helpful!

How You Can Profit from Energy Savings

Saving on your energy bills is an excellent way to cut unnecessary expenses, give you more money for other business needs, and boost your profits.

It's easy to do. It works whether you own or rent. With these practical tips, you may be able to cut your energy costs substantially—and also improve comfort and productivity.

And you'll get energy dollar savings year after year. What's more, there are many no cost/low cost things you can do yourself.



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Start Saving NOW:

Check the possibilities.

This booklet will help you understand the basics.

Do a walk-through "audit."

To see what changes make sense for your business, use the checklist on p.12. Also consider having an energy expert or design professional help with the audit.

Make an action plan... and carry it out.

Start with the three easiest things and do them as soon as you can. See the back cover for "How We Can Help."

No Cost/Low Cost Solutions

SAVE
On Your Energy Bills
BY:

Controlling "ON" time.

Equipment will use less energy if it runs fewer hours. You can control "run time" with either manual or automatic controls that are set properly.

Tightening things up.

All sorts of leaks—around windows and doors, at hot water faucets, through uninsulated roofs, etc.—can waste energy. There are many inexpensive ways to fix these.

Getting things serviced.

Professional servicing keeps energy-using equipment operating as efficiently as it can.

Installing better replacement parts.

You may be able to replace light bulbs, for instance, with a new kind that uses energy more efficiently, or with the same kind but lower in wattage.

Making equipment changes and sound purchases.

When you replace or add equipment, such as an air conditioner, buying an energy-efficient model of the right size will save you money on your energy bills.

CHECK OUT

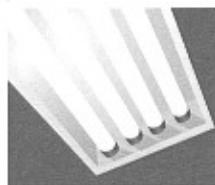
your five energy "systems" for dollar-saving opportunities:



Building "Envelope"



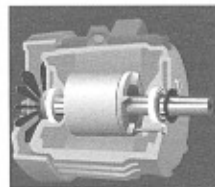
Heating, Ventilation, and Air Conditioning (HVAC)



Lighting



Hot Water



Machines and Equipment

Call Idaho Power for Help

If you have questions about how you can enhance the energy efficiency in your small business, a conversation with one of Idaho Power's delivery service representatives is a great place to start. If you're in the Treasure Valley, you can be directed to the proper person by calling (208) 388-2323. Elsewhere, call Idaho Power toll free at 1-800-488-6151.



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Building "Envelope"



Your building's "envelope" is made up of windows, outside doors, walls, the foundation, floor, roof, and perhaps skylights. The envelope shields the carefully controlled, temperate indoor environment from the sometimes harsh outdoor environment.

Tighten up doors, windows

If doors and windows don't close completely, they can let cooled or heated air escape, or they can let in winter cold and summer heat. Tightening up may be all that's needed.

Fix doors and windows that don't close.

A double hung window may be missing the lock which keeps the upper sash closed.

Outside doors that don't close completely may need to be re-fitted or re-hung, but often all that is needed is simply to adjust the striker plate or plane off an eighth of an inch.

Adjust automatic door closers.

A closer may shut the door slowly, or not completely. Frequently there's a simple adjustment that can be made with a screwdriver.

Close the gaps.

Any penetration of the building envelope should be closed. Gaps which leak air and energy dollars can be found where doors meet, where parts of

windows meet, and where doors and windows meet the walls.

Many kinds of caulking and weatherstripping materials are available to enable you to close these openings. Use the correct type for the job. To detect the gaps in the first place, feel with your hand, or watch a piece of tissue dangled near a suspected spot.

Replace broken glass.

Quite obviously, broken or missing panes can let a lot of air out or in.

Shade your windows

Adjust shades and blinds, or install window film to control the sun's heat.

Check for insulation

Does your air conditioning run a great deal on a hot day? Does your heating system do the same on a cold day? Possibly you have an under-sized system—or you may need roof or wall insulation.

Without proper insulation, you may be paying more—perhaps a lot more—than you should for heating or air conditioning, especially if your space is on the top floor.

Look under the roof, feel the walls.

If you're on the top floor and there is a suspended ceiling, push up a ceiling panel and look for insulation. If there's an attic, you may need to look there instead. If you have a flat roof, the insulation may be outside and hard to detect.

If the walls feel warm on a hot day, or cold on a cold day, they may need insulation.

If you can't tell if there is insulation:

Ask your assessor or building department to check their records; call whoever built the building; ask your landlord, if you rent; or call an insulation contractor, who may do a free inspection.

Should you insulate?

Insulation is often an excellent energy investment, so be sure to check it out (see p. 11).

"But it's only a little crack."

A pair of exterior doors with no weatherstripping can easily have an opening of 1/4" where the doors meet. While this doesn't look or sound like much, on a 6'8" high pair of doors it adds up to the equivalent of a 20-square-inch opening (approximately the size of this circle)! A similar gap in just two average-size double-hung windows, where the sashes meet, would add up to the same 20-square-inch hole!

Heating, Ventilation, and Air Conditioning (HVAC)



HVAC—Heating, Ventilation, and Air Conditioning—can consume a lot of energy. Fortunately, there are many ways you can reduce HVAC use.

Set thermostats for energy economy

Change the thermostat settings.

During operating hours, you may be using more cooling or heating than is necessary. People generally can be quite comfortable at temperatures below 70° in the heating season and above 75° during the cooling season.

Just a few degrees change in temperature levels can make a big difference in the amount of energy used!

Try these temperature levels:

Cooling Season:	76° – 78°
Heating Season:	66° – 68°

No calibrated controls?

If the controls on your air conditioning or heating units don't have degree markings (like "70°"), adjust the controls to "medium" or "low" or to another number (if there is 1, 2, 3, etc. on the dial). You can check the resulting temperature with a thermometer.

Gradual changes are best.

Make changes in the temperature levels gradually, say 1° every week or so. That will give people time to adjust.

Experiment.

Experiment to see how high a cooling setting— or how low a heating setting—is still comfortable.

Check your thermostats for accuracy

Obviously, if you have an inaccurate thermostat and don't know it, you can waste a lot of energy dollars.

Use a thermometer you're sure is correct to judge the accuracy of your thermostat. Then, set your thermostat to the temperature you want. For example, if your thermostat is off by 3°, setting it at 81° will give you a true 78° temperature.

Reduce HVAC running time

Turn it off before closing time.

A half-hour to an hour before closing time, turn off or reduce the air conditioning or the heat. It should remain cool or warm enough inside to keep people comfortable until closing time.

Exceptions to the rules:

- Health codes or building codes may require minimum ventilation at all times.
- Don't fully reduce temperature levels in very cold weather if there is plaster that might crack or if there are water-carrying pipes that could freeze and burst.
- During the heating season, turning off a heat pump that has auxiliary heat strips may not result in any energy savings unless the heat pump has an "intelligent" thermostat.
- Also, any heat pump that will be turned off in cold weather should have a crankcase heater.

Eliminate unnecessary HVAC use during unoccupied hours

You may be using energy to cool, heat, or freshen the air when nobody is there to benefit—at night or on weekends, for example. Eliminating that kind of waste is an excellent way to save HVAC energy dollars.

When everyone's gone home:

Very simply, air conditioning and heating should be turned off when nobody is around. And if only a few people remain, a window air conditioner or a fan may be enough. Air handling (ventilation) systems also use energy and should be shut down during unoccupied hours. For exceptions, please see above.

If it is essential for things to be at just the right temperature when the doors open in the morning, don't leave the HVAC on all night, all weekend, or during holiday periods. Instead, turn the HVAC on every day just before people arrive.

Exploding a myth!

Contrary to what you may have heard, it does save energy dollars to turn off the HVAC, let a building heat up or cool down, and then restore it to the desired temperature some time later.

Install a 7-day programmable thermostat.

A modern automatic thermostat saves energy by making sure your HVAC system always goes on and off at the right times and is always set at the proper temperature.

A 7-day programmable thermostat permits weekday and weekend variations as well.

Installing one is usually worth many times its cost, if you are likely to forget to set your present thermostat manually.

What about unused areas?

See if you can turn off or substantially reduce the cooling or heating for any room or area not being used. Keep windows and window coverings closed to insulate the unused area from outside heat or cold. Close any doors between the unused area and the rest of your space.

Help your HVAC work more efficiently

You can waste energy dollars by overworking your air conditioning or heating system. Here are some ways to make your HVAC more efficient and economical.

If you have a central air system, make sure the system is balanced.

If you have a central air system, you may be working the entire system very hard—just to get a bit of cooling or warmth to the area farthest from the central air conditioning or heating plant. “Balancing” the system involves adjusting the volume control dampers (if your system has them) and adjusting the registers.

The registers which let the cooled or heated air into each area frequently can be opened or closed by moving something: a lever, chain, slotted screw, or the louvers themselves. Turn on the air conditioning or the heat, and try adjusting the registers so each area gets just the amount of cool or warm air it needs. Probably the registers farthest away from the central plant or circulating fan should be wide open and those nearer to it partially closed.

Caution: In a heat pump or air conditioning system, most of the air supply registers should remain at least partially open to avoid possible damage to the system.

Although you can make the adjustments yourself, the best way to properly balance an entire system is to call an expert, who has special instruments. With a properly balanced system, you will be able to set your thermostats at more energy-saving levels.

Clean or replace filters; clean the coil.

The filter on your cooling or warm air heating system may be blocked by the dust and dirt that it has screened out of the air. This makes the unit work longer. Some filters can be washed and re-installed; others need to be replaced, perhaps every month or two. On an outdoor heat pump or air conditioning unit, cleaning the coil is also important to ensure efficient operation.

Have an expert service your HVAC units

Making sure your HVAC plant is working efficiently is one of the best—and easiest—ways to save energy dollars. In a single season, a tune-up by an expert can often save, in energy dollars, much more than its cost.

Buying a new unit or system?

Get one that is both energy-efficient and the proper size (not over- or under-sized). In air conditioners, choose the model with the highest energy efficiency ratio for the size you need.

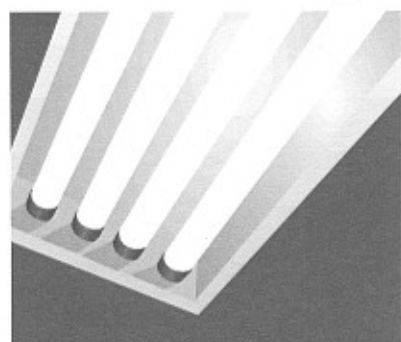
The buying guide on p. 11 should give you a basic understanding of the various efficiency ratings used. Consider Energy Star® components when you buy.

Be sure to seek the advice of an expert who will analyze your present system and recommend the best replacement.

Other HVAC improvements

There are many kinds of energy-saving modifications to your present HVAC system that may make sense. For example, installing an economizer cycle with enthalpy control, which automatically varies air intake in relation to outside air temperature, could be a good energy-saving investment in some areas of the country. Once again, get the help of an energy professional who can recommend what will be right for your system.





Your lighting is an excellent place to look for potential energy savings.

Changes are often easy, and many cost little or nothing to make.

Turn off indoor lights

Turn off lights when an area is unoccupied.

Lights should be turned off whenever an area is left unoccupied for any length of time. For instance, when people go to a meeting or to lunch, they should turn off the lights for their own work space.

Similarly, unless security is an issue, people leaving restrooms or storage areas unoccupied should "flick the switch." A sign at the light switch will remind people to turn it off, or it can be done by an occupancy sensor.

Turn off lights near windows.

If your lights can be controlled separately, turn off those nearest the windows whenever there is enough natural light. A photosensor control can do this automatically.

Use partial lighting before and after "public" hours.

There may be times when employees must work in an area but the "public" isn't there. If you have enough control of lights with a bank of switches, you may be able to turn on, say, half the lights and provide enough light throughout the area to meet people's needs.

Reduce outside lighting

You may have lighted parking areas, signs, entrances, walls, and landscaping. You may be able to turn off some of this lighting if you find it is not needed, or use it fewer hours.

A maintenance "must":

Keep lamps and fixtures clean. Dust, grease, and other dirt accumulations on lamps, lenses, globes, and reflecting surfaces of the fixture can reduce light output by as much as 30%! Lighting professionals recommend that you clean your light fixtures every two or three years. In greasy, dusty, or smoky settings, or when light fixtures are integrated with the HVAC system, cleaning may need to be more frequent.

Use only necessary safety and security lighting.

At night and when areas are unoccupied, the only lights left on should be for safety or security. Consider using "instant-on" lighting. In the daytime, make sure that parking area lights and perimeter security lighting are not on.

But won't bulbs burn out faster?

Although the life of a fluorescent lamp can be shortened if it is turned on and off frequently, energy cost savings far outweigh the cost of these lamps during their lifetimes. Turn off lights if nobody will be in the area for 5-10 minutes or longer.

Code Compliance. Be sure to comply with any code requirements for safety and security lighting, such as for exit signs, stairway lighting, and other emergency lighting.

Make sure automatic controls are working properly.

Some of your lighting may be controlled by a time clock which switches the lights on and off automatically at predetermined times which you select. Make sure the timer is set accurately and completely. Just an hour or two a day of unnecessary lighting, say in your parking area, can add up to substantial energy costs.

Remove unneeded lamps

Lighting levels often are higher than necessary, because many buildings were designed and built when energy efficiency was not a priority.

A simple way to save energy dollars is to remove unneeded incandescent lamps where lighting levels are too high. With careful attention to people's needs, you can reduce lighting costs and preserve comfort, productivity, and safety.

Removing fluorescents:

- **Remove pairs.** In two-lamp and four-lamp fluorescent fixtures with magnetic ballasts, lamps are usually wired in pairs and therefore must be removed in pairs (both lamps in a pair stop working when one is removed). In four-lamp fixtures with magnetic ballasts, you have the choice of removing either the two outer-most lamps or the inner pair. When removing lamps in a highly visible ceiling, you may want to remove the same pair (inner or outer) from each fixture to achieve an aesthetically pleasing, uniform lighting pattern.
- **Disconnect the ballasts.** Fluorescent fixtures include components called ballasts which provide proper voltage and current for starting and running the lamps. Ballasts use electricity even when the lamps are removed.

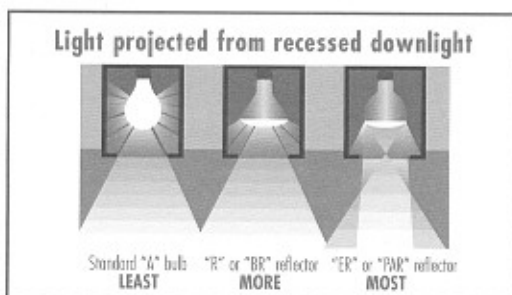
For maximum energy dollar savings when removing lamps, disconnect the ballasts as well. Disconnecting ballasts is best done by a licensed electrician.

Install more efficient lamps

One of the most effective ways to save energy dollars is to use the most efficient lamp that is suitable for the purpose. The table on p.11 shows the relative efficiency of lamps.

Install more efficient lamps in recessed downlights.

You often see standard light bulbs being used in recessed downlights. A standard bulb is a poor choice for this kind of fixture because it radiates light in almost all directions rather than just down. As a result, the fixture "traps" much of the light.



Rather than a standard bulb, a reflector lamp should be used. Because of its design, a lower wattage reflector lamp can project the same amount of light as a higher wattage standard bulb.

Use halogen lamps where appropriate.

Another type of incandescent lamp uses halogen gas to increase lamp output and prolong the life of the filament. Halogen light tends to be whiter.

When you need a tight beam, such as for highlighting a merchandise display, a "spot" beam rather than a flood will provide dramatic lighting with excellent energy savings.

Halogens also come in non-reflector models, but you may be better off in many cases to use a compact fluorescent which is even more energy efficient (see p. 11).

Replace incandescents with compact fluorescents.

The conventional incandescent light bulb is extremely inefficient, has a very short life, and must be replaced frequently. When you figure the true cost, the ordinary light bulb is not a bargain!

One of the great advances in lighting technology is the compact fluorescent lamp ("CFL"). Developed as a replacement for the common incandescent, the super-energy-efficient compact fluorescent is just that: a miniature U-shaped or spiral fluorescent tube with ballast. Screw-in

compacts will fit many of the fixtures where you previously used incandescent light bulbs, are far more efficient at producing light, and do so with much less heat.

Install lower wattage lamps

Without changing the fixture, it may be possible to replace your present lamps with similar ones that consume less electricity. For instance, replacing 40-watt "T-12" fluorescents with 34-watt T-12 lamps can yield substantial savings. Although T-12 40-watt lamps are no longer being produced, the ones you have may have so much life left in them that it may save you money to do "group re-lamping" and discard all of the 40-watt lamps even before they burn out! Ask an expert to help you figure the costs and savings.

Safety and security lighting

Most buildings have lights that are left on all the time to satisfy codes or safety and security needs. While meeting code requirements, you should be using only those fixtures necessary to do the job.

Although these may not be a big part of your lighting cost, retrofitting them can save you energy dollars. (See "Retrofit Your Exit Signs" example on p. 10).

Consider efficient HID lights for parking, other areas.

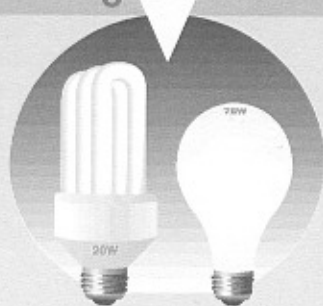
High intensity discharge (HID) lights include mercury vapor, metal halide, and high pressure sodium. While mercury vapor is an outdated light source and should be replaced, the other HIDs can be excellent, long lived, and efficient choices.

New controls and rewiring

Rewiring or installing more efficient controls can be a very effective investment, with a fast return and "pure gravy" savings for years afterward. And some projects cost very little to do. For instance, rewiring so you can use half-lighting (see p. 6) may save you energy dollars for many years.

Once again, consulting a lighting design professional is your best bet.

HOW to SAVE \$47 on a Light Bulb



Compare the total costs over 10,000 hours for a compact fluorescent and an incandescent:

	Compact	Incandescent						
Watts:	20w	75w						
Light output (lumens):	1,200	1,150						
Energy use (kWh):	200	750						
Lamp life (hours):	10,000	1,000						
Lamp replacements:	0	9						
Energy cost (@ 9¢/kWh):	\$18.00	\$67.50						
Cost of lamp replacement:	0	\$ 6.75						
Original lamp cost:	\$10.00*	\$ 0.75						
TOTAL COST for 10,000 hrs. ▶	\$28.00	\$75.00						
TOTAL DOLLARS SAVED @ 9¢/kWh by using a compact ▶	\$47.00							
Savings** at these kWh rates:								
	5¢	7¢	9¢	11¢	13¢	15¢	17¢	19¢
	\$25	\$36	\$47	\$58	\$69	\$80	\$91	\$102

*This is an approximate, typical cost for a compact. You probably can get compacts at even lower prices, especially when buying in quantity.

**Savings from labor to change incandescents not included.



Hot water may be used in your building for “domestic” purposes—e.g., for showers or for washing hands in employee lavatories—or it may be used in specialized machines such as restaurant dishwashers or commercial laundry machines.

Reduce the temperature

Even if you rent the space you use, you may have control of one or more water heaters—and their temperature settings.

Sometimes, as in an office, the only need for hot or even warm water is for handwashing in the lavatory. And yet, lots of quite hot water—say 140°F—is kept at the ready all day long. In such a case, the water heater could be set for a more moderate temperature—say 105°F.

Hot Water Temperatures

Handwashing	105°F
Showers	105°F
Laundry*	160°F
Dishwasher rinse**	180°F

* Check code requirements. Even lower temperatures may be practical with some soaps and detergents.

** Most dishwashers need water to enter at 140°F to boost it to 180°F. Also see “Machines” section.

How to do it:

There usually is an adjustable thermostat on the side of the storage tank of the water heater, but it may be hidden from view. You may need to remove a few screws and a cover plate to get at it. If you have an electric water heater, make sure you shut off the electric current to the heater before you do this.

If you have any doubts about making the adjustment, contact your utility, electrician, or a local heating/hot water contractor or dealer.

Experiment to see what is the lowest thermostat setting that will meet your needs, and still meet code requirements.

Use less

Here are some ways to use less hot water:

- Turn off the hot water tap when not needed.
- Run full rather than partial loads in automatic dishwashers.
- In machines, try chemicals or other cleaning materials that will work well with less hot water than you have been using.

Fix leaks

It always pays to repair hot water leaks. Because hot water systems are pressurized, most leaks gradually get worse. You can do many repairs yourself—quickly, easily, and at virtually no cost.

A few minutes, and a few cents for a new washer, may be all it takes to fix a leaky faucet.

Insulate the tank and pipes

If you have an uninsulated hot water storage tank or distribution pipes, consider adding an insulating jacket to the tank and installing tubular insulation on the pipes. If the tank feels hot or warm to you, it needs insulation.

If you have a gas-fired water heater: for safety use only a “retrofit kit” obtained from a hardware, plumbing, or building supplier.

Clean out sediment

Any tank-type water heater will lose efficiency if sediment accumulates in the bottom. The sediment acts as an internal insulator and inhibits transfer of heat from the heating elements to the water.

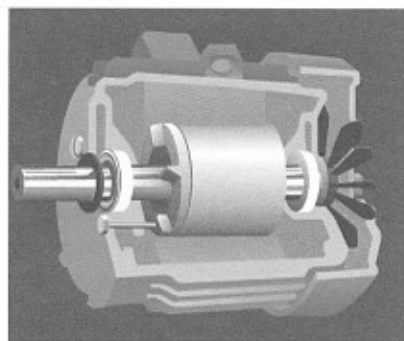
To make sure these deposits don’t build up, periodically open the drain valve near the bottom of the tank and draw off water until it runs clear (probably two to five gallons of water will be enough to drain).

Flushing the tank every six months should be sufficient, unless there are higher concentrations of lime and other minerals in your area, which may make it necessary to flush as often as every month. Experiment for a few months to see what the proper interval is, or ask your water company.

Other possibilities for savings

- A 7-day timer to control operation of the water heater (for example, to reduce energy use on weekends)
- A small “point-of-use” water heater installed right where the hot water is needed—if your present water heater is located far from there
- A new efficient water heater to replace a failing one; see the energy efficiency tag on each new water heater
- Water-saver showerheads; for instance, in a health club

Machines and Equipment



Many kinds of equipment use energy to transform or “process” material or to do some other job that needs an energy assist.

Even if your operation is relatively small in size, as are many businesses such as restaurants, bakeries, automotive paint shops, printing, and electroplating plants, your process energy costs may be very important to control.

In fact, “process” energy may be the **big** item in your energy expenditures.

Electric motors

Electric motors account for about three quarters of total electricity use in industry and half of the electricity use in commercial buildings. You may have electric motors in HVAC and refrigeration systems, conveyor belts, printing presses, blowers, pumps, and manufacturing and assembly equipment.

New motors:

When buying a motor, or equipment powered by a motor, be sure the motor has a high efficiency rating. Ask to see the NEMA ratings.

Replacing a motor:

You may have to replace a motor because it has burned out (and you decide not to have it rewound)—or because of renovation or expansion. You may also choose to replace a motor that still operates well, because a more efficient one may be a good investment.

- Buy the right size, not an “oversized” one.
- Consider a premium high-efficiency motor.

A good modification:

If full power is not always required, install a “variable speed drive” rather than “throttle” the motor’s output. Ask an expert about this.

Industrial processes

Operate and modify machines for efficiency.

Check the “Eight Ways” below for operating tips. Modifying the machine can also make a big difference (and may be inexpensive to do).

Improve motor efficiency.

Motors can be a very large energy user. Make every effort to control their energy use.

Find out more about your equipment.

There are many different industrial processes and types of energy-using equipment. Your trade association and possibly your utility will have more information on energy saving techniques.

Office machines

The fastest growing type of energy user in commercial buildings is office machines. In some offices the energy used, per worker, by computers, printers, and photocopiers may be more than that used by the lights!

Turn off machines when not needed.

Make sure that machines are turned off at the start of unoccupied hours.

Turn off machines during work hours if they will not be needed for some period of time. However, if warm-up and start-up are time consuming, for the sake of productivity it may make more sense to keep the machines running at all times, but turn them off nights and weekends.

Select smaller machines to use.

If there is a choice of a small or a large machine to use or to leave running—e.g., a photocopier—select the smaller one.

Check energy use when you buy (p. 11).

Cooking

- Turn equipment on only when necessary.
- Set temperatures only as high as needed.

Refrigeration and freezing

- Do not overload cases.
- Use night covers.
- Remove some lights.
- Set controls only as low as necessary.

Refrigeration Levels*

Frozen Food	-8°F
Ice Cream	-14°F
Delicatessen	35°F
Beer, soft drinks	40°F

* Review with your refrigeration contractor to assure proper levels for your particular needs.

Washing and drying

- Reduce water temperatures.
- Use cleaning materials that save hot water.
- Maintain the right dishwasher pressure.
- Load machines fully.

Eight Ways to Reduce Energy Use

1. Turn machines off whenever possible.
2. Don't forget the “hidden” machines and equipment—the almost silent computer, the photocopier in the little room down the hall, the elevator motor.
3. Adjust controls to a temperature, speed, or other setting that uses less energy but still does the job properly.
4. Don't forget to enable the “sleep” mode on newer electric equipment.
5. Use your equipment more efficiently. For example, load it to capacity rather than do partial loads.
6. Clean, tune and adjust, lubricate, replace worn parts, and otherwise maintain the equipment.
7. Don't create unnecessary problems; for example, don't release process heat inside your building where the air conditioning system must then cool it.
8. Manage your electricity use to avoid high “demand charges.” This is very important to do if you use lots of electricity for process energy. While you still may use the same amount of electricity, reducing demand charges can decrease your electric bills. Ask your utility representative.

Energy Improvements Can Be Excellent Investments.

Financially sound energy improvements can pay for themselves and then yield continuing savings, providing you with a good return on investment—possibly an excellent one.

You will want to have a payback analysis like the one below and likely a life cycle/rate of return analysis as well.

Payback example:

$$\frac{\text{Cost of energy improvement}}{\text{Annual energy savings}} = \frac{\$480}{\$240} = 2 \text{ years}$$

Besides financial benefits, other important results can include improved merchandise visibility and appeal and enhanced employee productivity (see the lighting retrofit example, at right).

Four examples of energy improvements

Retrofit your EXIT signs.

An old-style EXIT sign typically contains two or more small, incandescent lamps which use a total of 20 to 50 watts and last from 2,000 to 5,000 hours. All exit signs operate 24 hours a day, every day, resulting in 8,760 hours of use in a year. A single sign may use from \$18 to \$44 of electricity per year (at 10¢ per kWh). In addition, it requires lamp replacement perhaps four times a year, an added expense and maintenance burden.



Compact fluorescent replacements (first illustration under the exit sign) operate at 12 watts per sign or less and last about 10,000 hours for the lamps and 50,000 hours for the ballasts. The second lamp shown uses a series of incandescent lamps and has about the same energy consumption as the compact, but its estimated lamp life is up to 100,000 hours. The bottom **LED** (light emitting diode) retrofit is by far the most energy efficient, consuming about two watts per sign and lasting an estimated 100,000 hours or more. Some new local codes require entirely new LED exit signs.

Install a ceiling fan.

Ceiling fans use very little energy and can eliminate or reduce the need for air conditioning. They usually are easy to install.



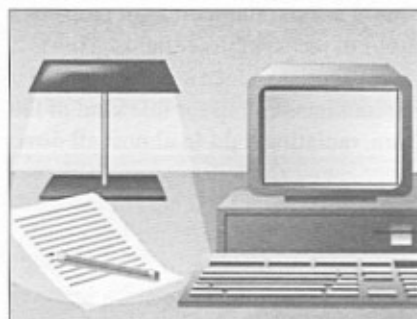
Retrofit your fluorescents.

There are three other ways to reduce the amount of energy used by your fluorescent ceiling lighting: replace the ballasts; retrofit or replace the fixtures; and install new controls.

Ask a lighting expert what makes the most sense. Be sure to ask about "T-8" or "T-5" lamps. Note: T-5s generally require a new light fixture.

Change Desktop Lighting.

The Illuminating Engineering Society recommends that computer users reduce background light levels and install task lighting for their desktops. By reducing background light levels to about 35 footcandles (50 to 75 footcandles is typical) and providing efficient, compact fluorescent desk lights, substantial energy savings are possible. This can also eliminate glare on computer screens and generally boost productivity.



Why get an energy expert?

Energy experts can:

- **analyze** those parts of your energy systems which you don't understand;
- **explain** possible energy savers, including changes in control settings, modifications to your systems, and new controls or equipment that would be more efficient;
- **estimate** potential costs and energy savings;
- **adjust** your existing equipment to save energy dollars immediately; for example, by testing and tuning your HVAC equipment;
- **help** you to avoid costly mistakes.

Energy Efficiency Questions?

Idaho Power's on line Energy Center may be able to answer many of your energy efficiency questions. To learn more, go to www.idahopower.com/energycenter.

Also, see the back cover for more information about our assistance programs.

Buying for Efficiency

Take a Hard Look At What You Buy.

Make sure what you get is the right size and type, has a high efficiency rating, and uses as little energy as will accomplish your purpose. The best way to achieve these objectives is to get the advice of an expert.

A tip: Try things out.

Where you may be buying many, such as new reflector lamps, get a few and try them out before committing to a major purchase.

Energy Star® Products

Energy Star products are the same or better than standard products, only they use less energy. To earn the Energy Star, they must meet strict energy efficiency criteria set by the U.S. Environmental Protection Agency or the U.S. Department of Energy. For example, office machines that have earned the Energy Star enter a low-power "sleep" mode after a period of inactivity. See www.energystar.gov.



Insulation

Check the table below.

R Value of Some Insulation Materials

Material	R Value per inch of thickness*
Fiberglass loose fill	2.5–3.0
Mineral fiber loose	2.5–3.0
Mineral fiber blanket	2.5–3.5
Cellular glass board	2.8
Perlite board	2.8
Fiberglass batt	3.0–4.0
Cellulose loose fill	3.1–3.7
Mineral fiber board	3.5
Polystyrene molded bead board	3.6
Fibrous glass board	4.0
Polystyrene foam board	4.2
Polystyrene extruded	5.0
Polyurethane foam board	6.3
Polyurethane foamed in place	6.7
Polyisocyanurate foambboard	7.2
Phenolic foam board	8.3

*The R values here are representative. Insulating products are labeled for actual R value.

Lighting

Check ballast efficiency and fixture characteristics as well as the lamps. For instance, electronic ballasts are more efficient than magnetic ones.

Lamp Efficiency

(LEAST efficient)

- Standard Incandescent
- Tungsten-Halogen
- Halogen Infrared Reflecting
- Mercury Vapor
- Compact Fluorescent
- Full Size Fluorescent*
- Metal Halide
- Compact Metal Halide
- High Pressure Sodium
- Low Pressure Sodium

(MOST efficient)

Source: EPRI

*With an electronic ballast, a full size fluorescent is almost as efficient as a high pressure sodium.

Electric motors

Check the NEMA (National Electrical Manufacturers Association) efficiency rating.

HVAC equipment

Buy the right size.

Make sure you get the right "size" unit—one which delivers the right amount of heating, cooling, or ventilation for the space it serves. Too large a unit can waste energy, too small and it won't be able to do the job. Look for BTUs (British Thermal Units) of heating or cooling power. Cooling equipment is often rated in tons (one ton = 12,000 BTUs per hour). Your supplier, HVAC service person, or perhaps a utility representative can help determine your requirements.

An important point: always consider buying equipment that is more efficient than the minimum standard, since any additional purchase cost will often more than pay for itself in increased energy savings.

Check the data and labels.

Be sure to request energy efficiency data. The data should be an EER, SEER, HSPF, or COP rating, as explained below. The rating usually is found on a tag or label on the equipment; it is always available in the manufacturer's literature—ask your dealer for it.

HVAC efficiency standards:

- **Window air conditioners** are rated in terms of **EER** (Energy Efficiency Ratio), the cooling output in BTUs per hour for a watt of input power. A window unit with an EER of 12.0 would use 25% less electricity to deliver the same amount of cooling as a unit with an EER of 9.0.
- **Central air conditioners and heat pumps (cooling mode)** are rated in terms of **SEER** (Seasonal Energy Efficiency Ratio). The SEER represents cooling performance over an entire cooling season and is equal to the total BTUs of cooling delivered divided by the total watt-hours of power used during a representative season. Units larger than 65,000 BTU/hr on water-cooled models have EER ratings.
- **Heat pumps in the heating mode** are rated in terms of **HSPF** (Heating Season Performance Factor). Similar to SEER, the HSPF represents heating performance over an entire heating season and is equal to the total BTUs of heating delivered divided by the total watt-hours of power used during a representative heating season. Units larger than 65,000 BTU/hr on water-cooled models are rated in terms of **COP** (Coefficient of Performance).

Self-Audit

Now
Take a Look
At Your
Energy Systems.

You can do this walk-through energy "audit" by yourself, but getting an expert to accompany you is a smart move because the expert can pinpoint the biggest potential energy savers. Be sure to take notes in addition to using this form.

Your Walk-Through "Audit" Checklist



Building "Envelope"

Insulation needed: _____

Caulking needed: _____

Weatherstripping needed: _____

Door closers, other repairs needed: _____

Ideas/Comments: _____



Heating, Ventilation, and Air Conditioning (HVAC)

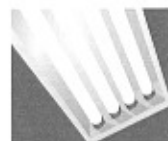
Thermostats checked for accuracy: _____

Current thermostat settings: _____ day _____ night/weekend

Areas where heating/cooling can be reduced: _____

System last serviced/balanced: _____

Ideas/Comments: _____



Lighting

Lighting turned off when not needed?: _____

Current light fixture type: _____ Lamp (bulb) wattage: _____

Areas where lighting can be reduced: _____

Is there a timer? _____ Is it set properly? _____

Is there a photocell control? _____

Ideas/Comments: _____



Hot Water

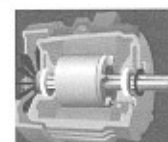
Insulation needed: _____

Current temperature setting: _____

Water saver devices needed: _____

Drips, leaks, other repairs needed: _____

Ideas/Comments: _____



Machines & Equipment

Turned off when not needed, if possible: _____

Automatic shut-off controls working: _____

Sleep mode enabled? _____

Loaded to capacity when used: _____

Last serviced: _____

Ideas/Comments: _____

Action Plan

The Final Energy Saving Step

After you have done your audit, draw up an action plan and carry it out. Make sure others in your company are in on the plan; they can supply ideas and help make things happen. Getting an energy expert to help create the plan will make it a better one.

It's always smart to start with the easiest things to do. But don't miss out on other changes that may take more effort or an investment but can save you even more energy dollars.

Getting Started

Decide on people to talk to:

(e.g., co-workers, maintenance staff, outside energy experts, utility people)

Schedule your "walk-through" self-audit:

Date/Time: _____

People to participate: _____



Your Dollar-Saving Energy Action Plan

List the projects that will help you save energy dollars. The first project in your action plan might be to check and adjust your thermostat settings.

Top Priority to Do	Location	Approximate Cost (if any)
1. _____	_____	_____
2. _____	_____	_____
3. _____	_____	_____
4. _____	_____	_____
5. _____	_____	_____
6. _____	_____	_____
7. _____	_____	_____
8. _____	_____	_____
9. _____	_____	_____
10. _____	_____	_____

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How We Can Help

We would like to help you make the most of your energy dollars.

We hope you have found this booklet informative and useful.

Please contact us to find out more about the services we offer.

Idaho Power Offers Enhanced Incentives for Businesses that Invest in Energy Efficiency

Idaho Power offers new and improved programs that provide financial incentives for new construction projects, simple retrofits as well as those that are more complex. The three incentive programs detailed below are: **Easy Upgrades** for simple retrofits, **Building Efficiency** for new building designs, and **Custom Efficiency** for more complex projects.

Easy Upgrades: Simple Retrofits Can Earn Incentives Now

By making simple energy-saving retrofits to existing commercial buildings, you may qualify for incentive payments of up to \$100,000 a year through the new Easy Upgrades program.

The menu of eligible retrofits includes improvements such as new controls for lighting or HVAC systems, high efficiency HVAC replacement units, replacing T12 fluorescent lighting with T8 fixtures, and more.

For more details about *Easy Upgrades*, go to www.idahopower.com/easyupgrades.

Building Efficiency: More Commercial Construction Incentives Offered

The Building Efficiency program now offers additional measures that qualify for incentives for energy-saving design features in construction projects that exceed code.

This program continues to offer a menu of incentives for lighting and cooling measures on construction projects for new buildings and additions or major renovations to existing buildings. In addition, incentives are now available for variable speed drives, energy management control systems and demand controlled ventilation.

Any size building can be eligible for this program that offers incentives of up to \$100,000 per project. For more details about *Building Efficiency*, go to www.idahopower.com/buildingefficiency.

Custom Efficiency: Industrial Program Expands Offering

Larger and more complex energy-saving projects can qualify for the Custom Efficiency program, formerly known as the Industrial Efficiency Program.

The Custom Efficiency program was designed to offer incentives for large and complex projects that do not fit easily into the other two programs. The prior annual incentive payment cap has been eliminated. More customers are eligible to participate in this program. And, Idaho Power's maximum cost share has been raised.

For more details about *Custom Efficiency*, go to www.idahopower.com/customefficiency.

For More Information

For more information about all three of these commercial and industrial energy efficiency incentive programs, you can also contact your Idaho Power representative, equipment supplier or design professional, or go to www.idahopower.com/business.

To find out who your Idaho Power representative is, you can call us at 1-800-488-6151 (or 208-388-2323 in the Treasure Valley) or go to our web site and search for "Energy Experts."



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