

Power Smart Energy Conservation Library

Power Smart Tips for All Businesses

Lighting the way to big savings

For most small or medium-sized businesses, lighting both consumes the most electricity and provides the greatest opportunity for energy savings. By switching to well-designed, energy-efficient lighting, you can significantly reduce your energy consumption while also:

- Decreasing the heat output from your lighting, which may reduce your air conditioning costs, and
- Increasing employee comfort and health, which may result in greater productivity.

Consult with your employees about comfortable lighting levels, and then talk to BC Hydro's Power Smart Alliance for advice in planning an energy-efficient design geared to your building and your needs.

To find out more, click bchydro.com/incentives or call 1 866 522-4713.

Power Smart Tips to reduce what you spend to light your business:

Turn off lights when not in use

Turn off lights whenever an area is unoccupied, including common areas such as copy rooms, break rooms, conference rooms and restrooms.

If your lights can be controlled separately, turn off lights whenever there is enough natural light. Post reminders next to light switches or install occupancy sensors to keep lights off in unused areas. Occupancy sensors turn off lights automatically when space is unoccupied. Depending on occupancy patterns, they could save about 25 per cent of lighting energy.

Use task lighting when appropriate

Instead of using ceiling fixtures that light entire rooms, use task lighting to direct the light exactly where you need it - on a specific work area, for example.

Replace lamps before they lose their effectiveness

The light output of a fluorescent lamp decreases as it ages, yet the lamp will consume the same amount of energy to produce this lower level of light. To eliminate this inefficiency, consider replacing all the lamps in an area at the same time, near the end of their useful life. In doing so, you will cut replacement labour costs, reduce work interruptions, and maintain proper light levels.

If your lighting system is more than 10 or 15 years old, consider an updated lighting design. BC Hydro's Power Smart Alliance can help. To find out more, click bchydro.com/incentives or call 1 866 522-4713.

Remove unnecessary lights

Many lighting systems are over-designed, providing too much light for the task. This is inefficient and can make the working space uncomfortable. In some cases, lamps or whole lighting fixtures can be removed or retrofitted without creating lighting problems, although this may create uneven lighting in the working environment.

Consult a lighting professional for advice before embarking on a removal or retrofit project to ensure the resulting lighting level will meet Workers' Compensation Board standards and provide optimal comfort.

Light occupied areas only during cleaning

Ask your cleaners to light just one area of your building at a time while they're cleaning rather than lighting the entire building. You might also ask them to take advantage of partial switching if available (such as turning on only one lamp of a three lamp fixture) to further reduce energy use during cleaning.

Think about paint

Consider painting your walls, floors and ceilings with lighter colours to increase how much they reflect light - making your current lighting more effective.

Add reflectors to overhead lights

Overhead light fixtures fitted with effective reflectors require only half the number of lamps to maintain the same level of brightness. The reduced number of lamps will also lower the amount of heat generated by your lighting, so your air conditioning costs will be lower too. A lighting professional is a good source of advice about the best reflectors for your fixtures.

Use timers or photocells for outdoor security and parking areas

Outdoor security lights can account for a large portion of a business's overall lighting energy costs. Put your outdoor lights on a photocell, and you can be sure they'll be on from dusk to dawn only.

Install dual switches and dimmers

Dual switches (more than one switch in different locations that control the same light) and dimmers are both useful for making sure you and your staff remember to turn lights off or down when a room is not in use or bright light is not needed. Dimmers can be local, centralized or even wireless, but not all light fixtures can be dimmed - ask a BC Hydro representative, electrician, lighting vendor or lighting professional for details.

Adjust lighting levels to match your true needs

Are your lights always on full, even when your business is not open to the public? Before and after "public" hours, try to use your lights only as needed: have just enough light for employees to safely do certain jobs, such as cleaning or restocking shelves. You may be able to turn off up to half of your lights during certain times of the day - and save considerable energy. Even if you have to rewire the lighting system to permit partial lighting, the payback from energy savings and increased lamp life may make the investment worthwhile.

Label your switches and electrical panels

Labelling your switches and electrical panels can help remind you to turn off unnecessary lights and may reduce your energy use by as much as 20 per cent. Mark your switches either:

Leave on at all times. Leave on during business hours only. Leave on during occupancy hours only.

Look around your business. You may find you have other equipment that can be labelled, too, and turned off after hours for additional savings.

If yours is a multilevel commercial building, consider installing an automatic Building Management System, which can be programmed to efficiently control your lighting and HVAC load to suit your needs and save energy. Talk to a BC Hydro's Power Smart Alliance contractor for more information - click bchydro.com/incentives or call 1 866 522-4713.

Install lighting occupancy sensors

Occupancy sensors can turn on lights only when someone is in a particular area and can, depending on occupancy patterns, reduce wasted lighting energy by up to 70 per cent. Occupancy sensors are most effective in spaces that are often unoccupied - such as extra offices, warehouses, storerooms, restrooms, loading docks, corridors, office lounges, and conference rooms.

Clean and inspect your lighting systems regularly

Believe it or not, dirt and dust can reduce light output significantly. Also, surface dents, scratches and burns can lead to rust forming on the inside surfaces, which can decrease lamp life, so clean and inspect your lighting systems regularly.

For more ideas, click bchydro.com/incentives or call 1 866 522-4713.

Power Smart Tips to retrofit your existing lighting to save energy *and* improve lighting quality:

Manufacturers throughout North America are developing new fluorescent and LED technologies intended specifically to reduce energy consumption and improve lighting quality, at costs comparable to standard technologies. Here are some good examples:

Compact fluorescent lamps

CFLs use up to 75 per cent less energy than standard incandescent bulbs to produce the same amount of light - and they last up to 10 times as long: up to 10,000 hours compared with an average of 1,000 hours for an incandescent bulb.

CFLs come in a variety of shapes and configurations to fit different applications and fixtures - including pot lights and general lighting fixtures.

Halogen infrared lamps

Halogen infrared lamps use about 30 per cent less energy and produce less heat than either incandescent or standard halogen lighting, while achieving the same light

quality. A 60-watt PAR halogen infrared lamp will provide similar light output to a 90-watt PAR standard halogen lamp.

LED MR16 lamps

Depending on your lighting requirements, a 3-watt to 7-watt LED MR16 (multi-reflector) lamp can replace a 20-watt standard halogen MR16 lamp and last many years longer - saving you both energy and maintenance.

T8 fluorescent lamps

Energy saver T8 fluorescent lamps are about 50 per cent more efficient than T12s, and virtually eliminate lamp flickering. They're also better looking and can have better colour rendering.

High-pressure sodium or metal halide lamps for exterior lighting

High-pressure sodium or metal halide lamps can use significantly less energy than outdoor incandescent or mercury vapour lamps, while providing a similar amount of light.

If you require faster starting and shorter re-strike times (you want your lights to turn on again quickly after being turned off), consider using metal halide lamps with Pulse Start technology. These lamps consume less energy than the standard metal halide lamps, have longer lamp life, improved lumen maintenance, and reduced colour shift over lamp life.

For more ideas, click bchydro.com/incentives or call 1 866 522-4713.

Exit Signs - The facts about exit signs

Most traditional exit signs are lit by two incandescent lamps that draw approximately 30 watts of power. That means a single exit sign could cost you approximately \$15 per year on your energy bills. Even more, because exit signs have to be on all the time, traditional incandescent signs burn out extremely fast (in less than one year) - so you're buying new bulbs and up on a ladder again in no time.

LED exit signs, on the other hand, use just 1 to 3 watts of power - about 90 per cent less than incandescent signs - and can be expected to last an amazing *60,000 to 100,000 hours*, or 7 to 11 years. The result: your energy consumption goes down, you save money immediately on your monthly energy bills, and you reduce your operational and maintenance costs for years to come.

Make your exit signs more efficient:

If your exit signs use old-fashioned, inefficient incandescent lamps, you're spending more money - and more time - than you should to operate them, and now is a very good time to change them.

BC Hydro will help you cover a portion of your costs, whether you:

- buy new LED exit signs, or
- retrofit your existing exit signs with LED lamps.

BC Hydro's **Product Incentive Program** (PIP) will help you replace a whole range of inefficient products with energy-efficient technologies, or retrofit your existing systems to make them more efficient.

To find out more, click bchydro.com/incentives or call 1 866 522-4713.

Energy-Efficient Buildings - How to stay warm and save energy at the same time

Here are two no- or low-cost ways to stay warm and lower your winter energy consumption at the same time:

1. Turn down the thermostat

Heating costs rise about five per cent for every degree above 20°C (68°F) that you set your thermostat. Simply turning your thermostat down a degree or two - and asking your employees to wear a sweater - can save you big time.

Depending on where your business is located, just turning the heat down from 21°C (70°F) to 16°C (61°F) at night can save as much as 10 per cent on your energy bills.

2. Draft-proof your business

Eliminate those little gaps, cracks and holes that let cold air into your building and you'll not only save money on your heating bills, you'll also make your business more comfortable, reduce inside moisture and help block outside noise.

Inspect your business carefully and run your hand around windowsills, doors and exterior walls to feel for cold drafts. If you find them, you'll most likely need weather-stripping to block leaks around your doors and windows, and caulking to stop leaks in or around your window frames, along baseboards, and around pipes or vents.

Staff at your local home improvement or hardware store can help you choose the right product for your problem areas, and may be able to recommend someone to do the work if you need help.

For more ideas, click bchydro.com/incentives or call 1 866 522-4713.

Power Smart Tips to make your building envelope more energy efficient

The building envelope is the shell made up of the windows, outside doors, walls, foundation, floor and roof. The more energy-efficient the building envelope, the less

energy you will need for heating and cooling the interior. To make your building envelope more energy efficient:

Apply weather-stripping around windows and doors

A pair of exterior doors with no weather-stripping can create a gap equivalent to a 12-cm-diameter (five-inch) hole that air constantly leaks through.

Install energy-efficient windows and doors

With windows that are old or in poor condition, the heat you pay good money for every winter can easily escape to the outside. In fact, heat escaping through your windows can account for as much as 30 per cent of all the heat lost throughout your building. No matter what heat source you use - electricity, gas or other fuel - that's a major portion of your energy bill simply gone to waste.

If you have air conditioning, the problem of inefficient windows can get even worse: if your windows do not keep out the summer heat, your air conditioning system must work even harder - and use more energy - to keep your building cool.

Your doors can be energy-wasters, too. If just one of your doors is old or in poor condition, if it's not properly insulated, caulked or weather-stripped, for example, you may be losing even more heat in the winter and cool air in the summer.

Luckily, you have options:

- You can choose to replace your existing windows and doors with energy-efficient windows and doors.
- Or, if you're not yet ready for a major renovation, you can significantly improve the performance of your existing windows and doors with a few simple and inexpensive measures, such as installing weatherstripping around your windows and doors.

Consider window film

Window films, such as prismatic glazing, reflect direct light and heat out of the building to control interior glare and limit cooling costs, while angling light towards the interior ceilings for maximum light distribution. Also, window films reduce building heat loss in the winter.

Use window coverings effectively

In the winter, close curtains, shades or blinds at night or other times when your building is unoccupied to retain heat - but be sure to open them on sunny days to take advantage of winter sun. In hot weather, use your window coverings to help keep your building cooler.

Install shades and awnings

Install shades and awnings in south and west facing windows to prevent overheating and too much glare from the sunlight during the summer.

Add roof insulation

If you're planning to replace your roof, remember to add insulation at the same time to reduce heat loss.

For more ideas, click bchydro.com/incentives or call 1 866 522-4713.

Power Smart Tips to make your HVAC more energy-efficient

Lots of businesses have heating, ventilation and air conditioning (HVAC) systems that run flat-out 24 hours a day - even when they don't have to. Here are a few ways to use your (or your landlord's) HVAC more efficiently and save significantly on your energy bills.

Think energy efficiency

- Install a programmable thermostat or, for larger buildings, an energy management system to automatically adjust your HVAC systems at nights and on weekends. This single change could save you anywhere from five to 30 per cent in energy costs.
- Consider installing adjustable speed drives on fans, chilled water pumps and heating pumps. Adjustable speed drives allow equipment to operate at varying levels to match the actual varying loads.
- Follow the maintenance schedule recommended by your HVAC manufacturer. This will keep your equipment working efficiently.

Heat only where and when you need it

- In cold weather, heat your building to a maximum of 21°C when occupied and 16°C when unoccupied.
- Set your heating system to turn on when staff are scheduled to arrive (rather than before), and set it to turn down before they leave (for the last hour staff before closing).
- Turn off your heat pumps when the outdoor temperature is above 18°C.
- Don't heat (or reduce the heat in) unused or seldom used areas, such as lobbies, storerooms and stairwells.

Maximize your air conditioning

- In summer, cool your building to no lower than 24°C when occupied. Let it warm up a bit when no one is around.
- Maximize outdoor air for space cooling by using the "fan only" option on the air conditioning. During the summer cooling season, flush the building during the night with cooler outdoor air.
- Keep the air inside your building cooler (and use less air conditioning) by shutting off all unnecessary lights, cooking equipment and office equipment. **L I G H T S**

Energy-Efficient Offices

Phantom load: arresting the invisible thief

You might not know it, but there's an invisible thief wandering around your business every day and every night, stealing your energy and boosting your energy bills. His name: phantom load.

All electronic devices - including computers, printers, modems, photocopiers, fax machines, televisions, cell phone chargers, coffee makers and anything else with a clock, timer, adapter, memory or remote control - continue to draw power even when you're not using them. If you've got a lot of devices at your workplace, that can really add up.

Here are two easy but effective ways to reduce your phantom load:

- Turn off your computers, monitors, printers, copiers and other equipment when they're not in use - especially nights and weekends. (If you must leave your computers running overnight, okay, but remember to turn off everything else.)
- Ban screensavers (which do not, in fact, save energy) and instead enable the "power save" or "sleep" mode on your computers. Your computers and monitors will automatically power down and save energy when no one is working at them, but come back to full power with a touch on the keyboard or a click on the mouse.

For more ideas, click bchydro.com/incentives or call 1 866 522-4713.

Busting two popular computer myths

- Computers are not as sensitive as you may think. You can start up and turn off your computer as many times as you want: it will not damage your computer's components - in fact, turning off your computer when you're not using it will save energy and reduce wear on your system at the same time.
- Screensavers do not save energy. In fact, some screensavers actually use more electricity to create complex graphics.

To find out more, click bchydro.com/incentives or call 1 866 522-4713.

Power Smart Tips to create an energy-efficient office

Saving energy in the office starts with your choice of equipment.

Buy ENERGY STAR®

When it's time to buy new equipment, always look for the ENERGY STAR® label.

If you see the ENERGY STAR on a computer, monitor, printer, fax machine, scanner, photocopier, multi-function device or any other piece of office equipment, you know that it meets or exceeds the Government of Canada's highest standards for energy efficiency.

In general, ENERGY STAR office machines help save energy in two ways: they use less energy to perform regular tasks and, when not in use, they automatically enter a low-power mode.

Because they use anywhere from 40 to 65 per cent less energy than non-ENERGY STAR models, the savings can be significant.

Choose laptops instead of desktops

A typical laptop computer has a maximum power consumption of about 15 watts and extensive power management capabilities. A typical desktop PC with display, on the other hand, consumes about 10 times that or 150 watts, and has limited power management features.

Substitute laptops for desktops and you could save up to 90% or more.

Select a smaller monitor

A large monitor uses more energy. Buy only the size you need.

Consider a shared, black and white ink-jet printer

Laser printers consume a great deal of energy. Black and white ink-jets both cost less to buy and use less energy - and their quality is getting better all the time.

You also may be able to make do with a shared printer, rather than a printer at every workstation.