

Please use the following resources to help your business

1. **Lighting**
2. **Heating Ventilation and Cooling (HVAC)**
3. **Computer Power Management**
4. **Appliances and Refrigeration**
5. **Rebates**
6. **Additional Resource List**

1. Lighting

Lighting is often the most-effective way to reduce energy demand and the incentives make the changes an even better deal. In almost all tenant/landlord relationships the tenant has a good degree of control over the lighting. Therefore, many energy requirements may be on the lighting side. First, identify which light bulbs you use. Here are the most common types:

- **Incandescent**

The standard incandescent is the most common light bulb. This is the pear-shaped bulb you have seen more than any other. The label should have a wattage listed, most commonly in the 60-100 W range. These must be replaced as part of the Green Business program. Compact fluorescent bulbs are the easiest replacement.



- **Halogen**

Common halogen bulbs are large flood lamps with a screw-in bases, or bipin bulbs that go into track or recessed light fixtures. Replace the screw-in bulbs with compact fluorescents and the bi-pin based bulbs with a lower wattage (IR/infrared) version of the same type halogen. Remove any non-spotlighting halogen fixtures with ones that will accept screw-in CFLs. Be sure to get dimmable CFLs if the fixture uses a dimmer.



- **Compact Fluorescent**

There are three common types of compact fluorescent bulbs. The first looks quite similar to the standard incandescent, with the exception of a larger base that holds the ballast of the compact fluorescent. The



second common type is the spiral cone, which is often hidden in the other behind frosted glass. The third type is the two-pin based lamp. These are commonly used in industrial applications and are very common in the recessed reflective cans seen in many offices. When choosing a compact fluorescent be skeptical of the lamps that aren't Energy Star certified. Be sure to get bulbs that have a high color rendering index (CRI), which is on a scale of 1-100. Also look for the color temperature on the label. A 'warm white' lamp would be closest to the color of an incandescent, at about 2700 K. If you'd like brighter, whiter light closer to daylight look for color

temperatures in the 300K and up range. Note that compact fluorescents are also made in PAR and R type shapes to replace halogens.

- **Linear Fluorescent Lamps**

These are the most common fluorescents in non-residential applications. The long thin tubes that we see in warehouses, offices, and businesses everywhere are very efficient, but there are a few types: the T-12, the T-8, and the T-5 lamp. The T-12 has a diameter of 1.5 inches, the T8 is 1 inch, and the T-5 is 5/8 inch in diameter. The older T12 lamps require magnetic ballasts, while T8s and T5s typically use the more efficient electronic ballasts.



The T12/magnetic ballast combination uses more energy, has higher levels of toxic materials, and puts out less light. Get rid of these systems before it's too late!



- **Exit Signs**

It is sometimes difficult to tell which kind you have without opening the sign. Look for a strip of tiny red or green lights to indicate that you have an LED sign, one or two two-pin bulbs that indicate you have an incandescent sign, or two bulbs that look like compact fluorescents to indicate a CFL sign. The incandescent bulbs are usually 15-25 W each and are labeled as such.

- **Occupancy Sensors**

For spaces with variable occupancies like restrooms, conference rooms, storage rooms, hotel bathrooms, and lockers consider using occupancy sensors. When doing a survey of your facility's energy use look for places where lights are on but the room is not in use. If these are spaces that are empty for long periods and have short bursts of use they could be a good fit for an occupancy sensor. There are many options for the sensors; most used in commercial settings have a sensor integrated into the switch. In guest bathrooms, you might use a sensor with an integrated LED nightlight so that guests don't have to leave the light on in order to find their way to the restroom at night. For spaces with one owner (like a private office) it is simpler and cheaper to educate the users to turn off lights themselves.

2. Heating Ventilation and Cooling (HVAC)

These are the points most often skipped in the checklist. Depending on your business's situation in the building (tenant, owner, subletter, etc) you will have zero to complete control over the heating and cooling systems. If you are a tenant in a multi-tenant building the building manager is likely to have chosen the systems, and maintains them, in which case you as a tenant would be responsible only for the setpoints (76°F for cooling and 68°F for heating) on your thermostats. However, if you own the building you would be expected to answer all questions regarding HVAC equipment and maintenance.

An example of a building owner doing a stellar job on the HVAC side is the Bay Area Air Quality Management District (BAAQMD). They were recognized as a Green Business in March 2007. They own their building in the Van Ness corridor and have a dedicated, well-educated facilities' manager who knows the building in and out. He understands the system components and makes replacements choosing the most efficient equipment available. They perform regular maintenance and keep detailed logs. The building also has an Energy Management System (EMS), which allows for detailed checks to ensure that all components are working as expected.

Another example is the small business owner who rents in a small office building. They have about 300 square feet of office space with only a radiator heating system. In this case, the building owner/manager controls the central plant (in this case, only a boiler) and all related maintenance. The small business owner is only able to set the temperature at the thermostat in the space. The only real option for controlling HVAC energy use is adjusting the setpoint to 68 °F in heating. Similarly, in the identical tenant relationship with both heating and cooling, only the tenant controlled measures would apply in the HVAC section.

A third example is the home office in which the business owner owns the home. In this case, the business owner is responsible for all heating and cooling points, though it is unlikely that they have air conditioning. Maintenance issues, as well as the selection of energy efficient equipment, are possible points.

3. Computer Power Management

Computers are serious energy consumers especially considering the amount of time they sit unused; while you are at a meeting, eating lunch, or even home for the evening. Many people assume that the screen savers indicate that the computer is in low power mode, but in fact there is little savings. Still others believe that turning the computer off and on uses more energy. Neither is true. In order to ensure that your systems are powered down, take the following steps:

- For a Windows system: Look under Start window, then Settings, then Control Panel, then Power Management. From here decide how long the computer should wait until turning off the monitor (mine is set at 10 minutes) and the CPU (mine is set at 30 minutes).
- For an Apple system, go to 'System Preferences', then 'Energy Saver', then 'Sleep'. From here you can either set a threshold for the entire system (monitor and CPU) or for each component separately. For the green business program, monitors should sleep after 15 minutes, and CPUs after 30 minutes. If you are a very large business with an IT manager dedicated to installing software through the network you should consider network power management.

4. Appliances and Refrigeration

Replace refrigerators at the end of their life, unless you are still using one from before 1993, in which case you should get rid of it as soon as possible. When you are ready to purchase a new refrigerator or freezer be sure to purchase Energy Star certified models. See Energy Star's website to find an Energy Star model from your preferred brand.



5. Additional Resource List

- Energy Star
- Consortium for Energy Efficiency
- EPEAT
- Resource Solutions (Renewable Energy non-profit)

*** Special thanks to the San Francisco Green Business for allowing us the use of their literature
<http://sfgreenbiz.org>. ***