



Commercial Lighting

There are many benefits to changing out old, inefficient lights with more efficient lights. These benefits include enhanced lighting quality, energy savings, energy cost savings and reduced maintenance costs. In addition, Avista Utilities offers incentives for lighting retrofits and the installation of occupancy sensors. For more details regarding available incentives, please refer to our Commercial Lighting Incentive Agreement and Commercial Lighting Table.

Compact Fluorescent Lighting: A standard incandescent bulb is very inefficient because much of the energy it uses is turned into heat instead of light. A compact fluorescent bulb turns more of its energy into light and less into heat. Compact fluorescent lights use 75 percent less energy than standard incandescent bulbs. A 15-watt compact fluorescent can supply the same amount of light as a 60-watt incandescent bulb. Compact fluorescent bulbs last 10 times longer than incandescent bulbs (10,000 hours vs. 1,000 hours). Since compact fluorescents generate less heat than standard incandescent bulbs, this will significantly reduce cooling load in buildings with air conditioning. In addition, dimmable compact fluorescents are available. Installation of a solid-state switch is required.

Cold Cathode: A cold cathode light is an enclosed tubular light that works by passing an electrical current through a gas or vapor, much like neon lighting. It can be used as a replacement for incandescents up to 60W – 70W in situations where compact fluorescents are not adequate. Cold cathode lights can come in many sizes and colors, and there are many advantages over neon and fluorescent lighting. Of particular note, the cold cathode may be dimmed by any dimmer used with incandescent lamps, can be used in flashing mode and has a lower temperature working range than compact fluorescents. A cold cathode light is up to five times brighter than neon lighting, and it has one of the longest lives of any lighting fixture at about 25,000 hours. The longevity of a cold cathode is not shortened by the repeated action of turning it off and on.

T-12, T-8 and T-5 Fluorescent Lighting: One of the most common lighting retrofits is the conversion of T-12 lamps to T-8 lamps. T-12 fluorescent lighting is far less efficient than the T-8 fluorescent lighting technology. The T-8 fluorescent tube produces the same light output while using less energy than its T-12 counterpart. The T-8 is also superior to the T-12 in its ability to accurately render colors. In addition, the flicker and hum associated with older fluorescent technology has virtually been eliminated.

T-12's: T-12's are a common type of fluorescent light. The '12' means that the tube has a diameter of $1\frac{1}{2}$ inches ($12/8^{\text{ths}}$). They commonly come in lengths of four and eight feet.

T-8's: T-8's are a more efficient form of fluorescent lighting than the T12. They most commonly come in four-foot and eight-foot lengths, and are just one inch in diameter ($8/8^{\text{ths}}$). Although the T8 lamps are slimmer than T12's, identical pin spacing makes them easy to install in an existing fixture. Only the lamps and ballasts need to be changed.

T-5's: T-5 lamps are smaller in diameter ($5/8''$) than a T-8 and operate only with electronic ballasts. Since they are about 2 inches shorter than a T-8 or T-12, they are not intended as a retrofit but are used in new fixture designs. A high output T-5 lamp is very bright with over 5,000 lumens output. The T-5 HO (high output) lamp works best in high bay applications. It is a replacement for high-intensity discharge (HID) light sources, such as mercury vapor, metal

halide and high-pressure sodium lamps. T-5 lamps provide instantaneous start-up while HID lighting requires a 4 to 15 minute warm-up period.

Pulse-Start Metal Halide: Pulse-start metal halide lamps are a type of high intensity discharge (HID) lighting. Pulse-start lamps have a greater light output than standard metal halide. Installing pulse-start metal halide lighting can reduce costs by up to 40-60% when compared to other HID lighting. In addition, pulse-start metal halide lamps have a much longer lamp life and provide a better quality of light.

Exit Signs: Exit signs have an excellent potential for energy savings, as they are illuminated 24 hours a day, 365 days a year. Replacing existing incandescent exit signs with more efficient LED models is also a very inexpensive project. We recommend using Energy Star compliant LED exit signs.

Lighting Occupancy Sensors: Occupancy sensors are controls that turn lights on only when there are occupants in a room, reducing electricity use when no one is present. Occupancy sensors are ideal for spaces that are frequently unoccupied, such as: conference rooms, storerooms, restrooms, lounges, and individual offices.

Energy and Cost Savings: One of the benefits to changing out old, inefficient lights with more efficient lights is the energy and cost savings that are achieved. Here is an example of potential energy and cost savings when a T-12 fixture is retrofitted with a T-8:

Step 1: Determine the savings in watts:

Total average watts for a 4-Lamp T-12 fixture = 162

Total average watts for a 4-Lamp T-8 fixture = 112

Subtract the existing wattage from the proposed wattage: $162 - 112 = 50$ watts saved

Step 2: Multiply the watts saved by the hours of operation to determine the watts saved per hour:
(For this example we will use 3120 hours which is 12 hours per day x 5 days per week x 52 weeks per year)

50 watts x 3120 hours = 156,000 watts per year

Step 3: Convert watts to kilowatt-hours (kWh)

156,000 divided by 1000 = 156

Result: Each fixture will save approximately 156 kWh (additional savings from cooling not included)

To determine cost savings multiply the kWh savings by the kWh cost:

$156 \times .07$ (cents per kWh will vary based on rate schedule) = \$10.92 in savings for each fixture

For questions regarding the Commercial Lighting Program please call Leona Doege, 509-495-4289.

