



ALL ABOUT LIGHTING

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PLEASE NOTE:
In order to view
this e-book, users
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WHAT IS MASS SAVE?

Mass Save® is an energy saving initiative sponsored by Massachusetts' natural gas and electric utilities and energy efficiency service providers.

Together, we provide a wide range of energy efficiency services to help Massachusetts residents and businesses manage energy use and related costs. Mass Save believes that when we make smart energy choices, we can manage our energy costs, enhance the value and comfort of our homes and businesses, and have a positive impact on the environment.

The electric sponsors of Mass Save include:



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These sponsors work closely with the **Massachusetts Department of Energy Resources** to provide electric customers an array of services, incentives, discounts, and information to manage energy use and related costs.

WHY LIGHTING?

INCANDESCENT /
HALOGEN BULBS



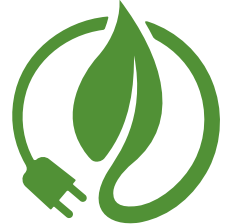
ENERGY STAR®
CERTIFIED LEDS



SAVE
MONEY



SAVE
ENERGY



UPGRADING THE LIGHTS IN YOUR HOME from inefficient incandescent or halogen bulbs to ENERGY STAR certified **LEDs (light emitting diodes)** is one of the easiest and biggest opportunities for you to save energy and money in your home.

90% ↓
ENERGY

LED bulbs use up to 90% less energy than incandescent bulbs to produce the same amount of light.

**SAVINGS
PER BULB
PER YEAR**

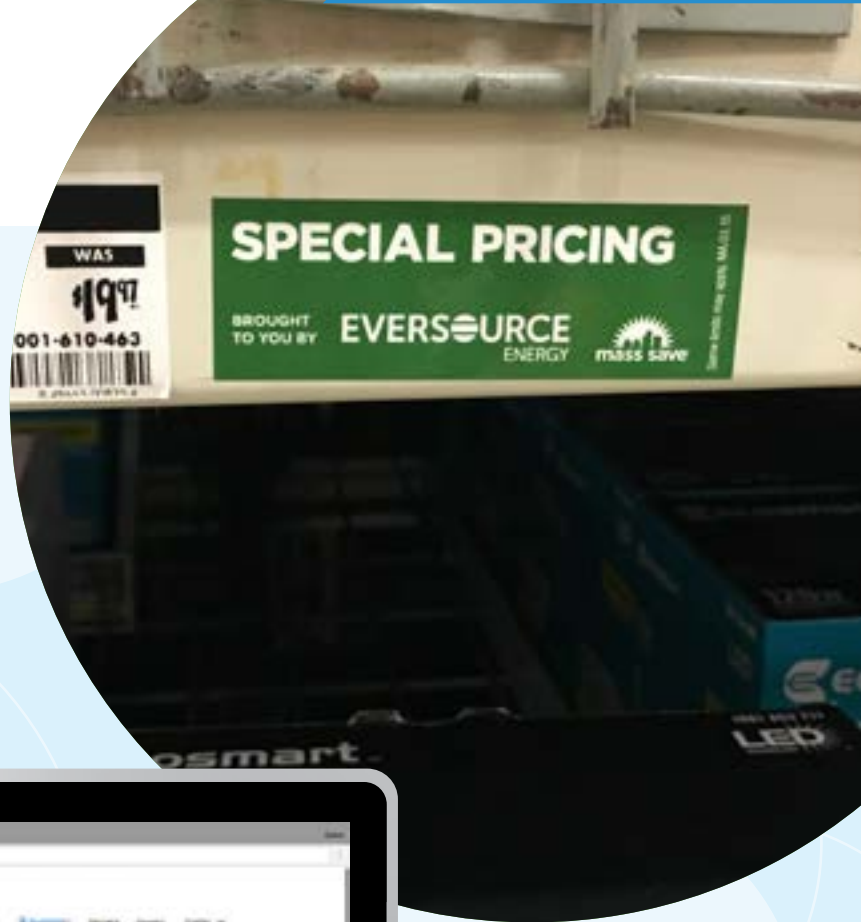


Simply upgrading the indoor and outdoor lighting in your home can save over \$10 on energy costs per year **per bulb**.

HOW DO THE MASS SAVE LIGHTING PROGRAMS WORK?

LOOK FOR
THE SPECIAL
PRICING LABEL
in-store that calls out
these discounts.

To help customers with the upfront cost of upgrading their home lighting to LEDs, the electric sponsors of Mass Save provide instant discounts on ENERGY STAR® certified LEDs **online** and at **stores throughout the state**.



SAVINGS OPPORTUNITY

Lighting accounts for about 10% of the electricity used in the average U.S. home. Although the energy savings from one bulb may seem small, there is a large cumulative effect from many residents replacing their light bulbs.

WHY LEDS?

- More Efficient ←
- Durable ←
- Versatile ←
- Longer Lasting ←

<i>Example 800 Lumen Bulb Choices (equivalent to 60 watt incandescent)</i>	ENERGY STAR® certified LED	Incandescent
Energy Used	9 watts	60 watts
Lifetime	15,000 - 25,000 hours (13 - 21 years)	1,000 hours (1 year)
Annual Savings Compared to an Incandescent Bulb*	\$10.72	\$0

*Assumes 3.2 hours of daily use at \$0.18 cost per kWh

LED lighting differs from incandescent and CFL (compact fluorescent light bulbs) lighting in several ways. When designed well, **LED lighting can be more efficient, durable, versatile and longer lasting.** LED lighting products use light emitting diodes to produce light very efficiently. An electrical current passes through semiconductor material, which illuminates the tiny light sources we call LEDs.

ENERGY STAR® VS. NON-ENERGY STAR

→ Not all LEDs are created equal.

NON-CERTIFIED LED BULBS...

The ENERGY STAR specification requires that bulbs claiming to be 60 watt incandescent replacements must have a light output between 800-1,099 lumens (lumens are a measure of brightness), however some non-certified LEDs that claim to be 60 watt replacements only have a light output of 750 lumens.

If you're looking for a dimmable bulb, a bulb to use outdoors, or a bulb that's suitable for fully enclosed fixtures, an ENERGY STAR certified LED is much more likely to suit your needs than a non-certified bulb. It's always a good idea to check the information on the box when you're looking for these features.

ENERGY STAR certified LEDs are required to have a minimum rated life between 15,000 and 25,000 hours (depending on the style of bulb). Some non-certified LEDs have rated lives as short as 2,000 hours. If you have to purchase 2 or more non-certified bulbs to last as long as one ENERGY STAR certified LED, you'll save money with the ENERGY STAR LED in the long run.

Many non-certified LED bulbs don't cast light in as broad a range as you'd expect from a general purpose light bulb. ENERGY STAR bulbs are required to meet light distribution standards to ensure they'll perform as expected.

**ENERGY STAR
certification
takes the guess
work out of
choosing a
quality LED.**

Poorly designed LED bulbs can begin to flicker, shift in color, look dim, or offer uneven light as they age. ENERGY STAR certified LEDs are tested to ensure compliance with more than 20 separate industry standards and procedures, including long-term testing, so you can be confident in their quality.

DESIGN FORWARD LIGHTING

Integrated Fixtures and Dimmable Lighting

LEDs come in many shapes, sizes, styles, and colors, meaning you can find one for every application and space in and around your home.

INTEGRATED FIXTURES

- **Innovative, versatile designs.** Integrated LED fixtures offer sleek designs, smooth light, and new lighting styles. Because of the compact nature of LED light sources and their long lifetime – up to 50 years in some instances – lighting manufacturers can design LED light fixtures that don't use replaceable bulbs. This means they can get really creative with the shape of the fixture.
- **Smoother, more consistent lighting.** Because integrated LED fixtures don't depend on bulbs, the light source can be more evenly distributed throughout the fixture, providing a more even light. This is great for applications like vanity bath bars that you might have on either side of your bathroom mirror. Who doesn't want help looking their best!



DIMMABLE LIGHTING

- Many ENERGY STAR® certified bulbs and fixtures are dimmable down to 5% of light output when used with a **compatible dimmer**, allowing you to vary the atmosphere in any room. It's great to have this flexibility in a common area; lights up for board game night, lights down for movie night. Did you know that dimming the lights not only sets the mood, it also uses less energy?



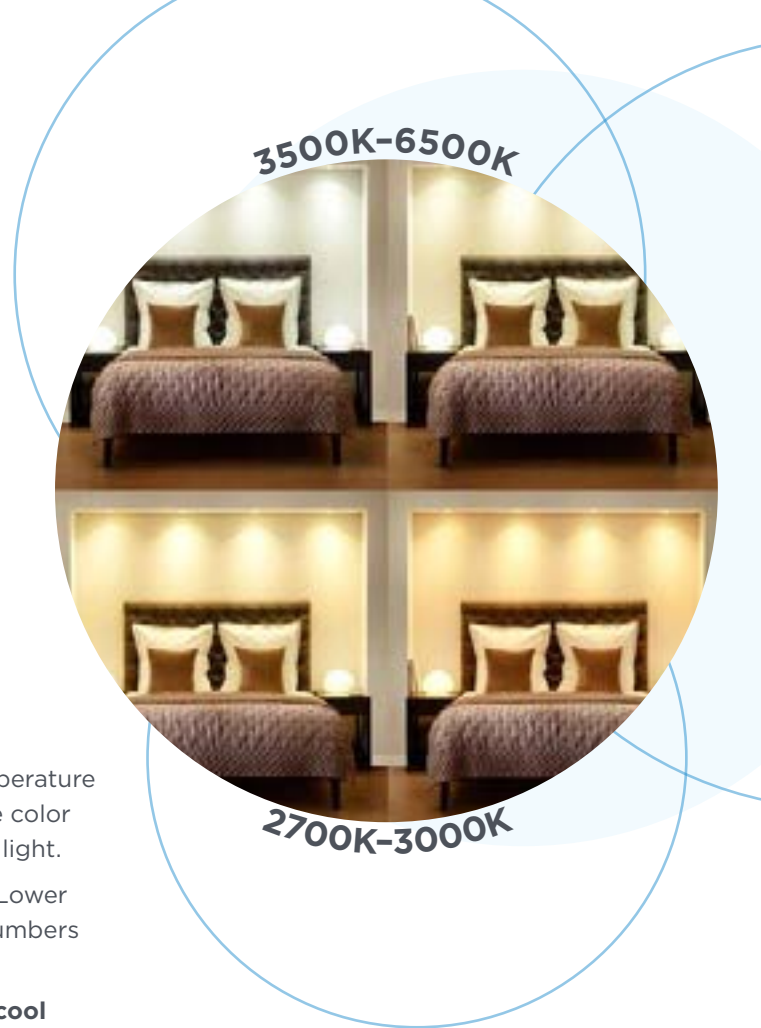
DESIGN FORWARD LIGHTING

Color Temperatures

COLOR TEMPERATURES

With LED lighting, you can opt for lights with different color temperature - from warm yellow, to crisp white, to bright daylight. Choose the color temperature to match the colors of the room and purpose of the light.

- **Range.** The color temperature of a light is measured in Kelvin. Lower Kelvins means warmer, more yellow light while higher Kelvin numbers indicate crisper, more bluish light.
- **Match warm light with warm room colors and cool light with cool room colors.** Most people prefer between 2700K and 3000K for general purpose lighting. 2700K is the color of traditional incandescent lighting and brings out the warmer tones of natural wood, reds, and yellows. 3000K is slightly whiter and compliments whites and stainless steel accents in a room.



WARM WHITE LIGHT 2700K-3000K



*warmer indoor lighting, table lamps, recessed lighting, warm accent lighting **

COOL WHITE LIGHT 3500K-4100K



*brighter light; indoor, outdoor, bathrooms, and kitchen lighting **

DAYLIGHT 5000K-6500K



*brightest white; could be used indoors for bathroom or kitchen lighting, best outdoors **

** All subject to personal preference.*

RELIABILITY & SAFETY

CLICK EACH
ICON TO
LEARN MORE



SHATTER RESISTANT

Many LED bulbs are shatter resistant. Because the bulbs are made from hard plastic rather than glass, these bulbs can withstand being dropped or knocked over. A definite plus if you have a household where durability counts!

LOW HEAT

Not only are LEDs energy-efficient, they are less prone to burning fingers. LEDs produce around 90% less heat than incandescent bulbs, meaning less wasted energy and a bulb that you can touch without running for an ice cube.



LEDs

ENVIRONMENTALLY FRIENDLY

Because LEDs use less energy and have long lifespans, these bulbs don't need to be changed as often, which means less material waste in our landfills each year. Plus, LEDs don't contain mercury, which makes it safer for you and your family if a bulb ever breaks.

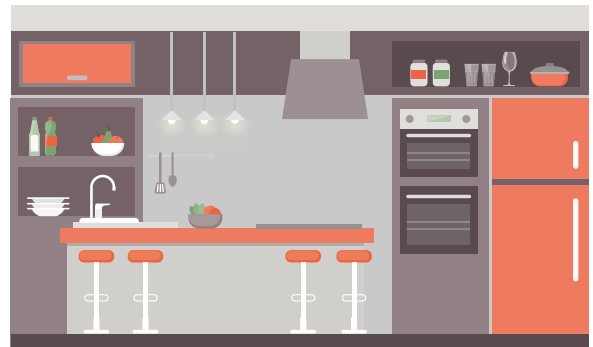
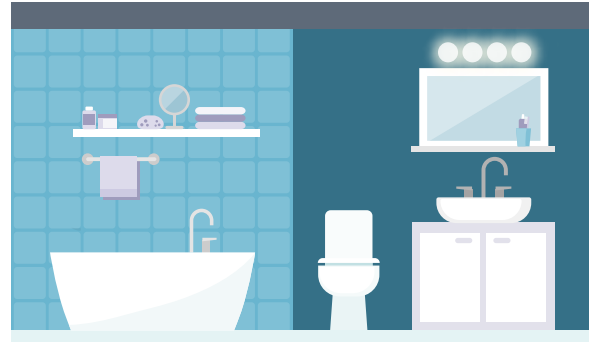
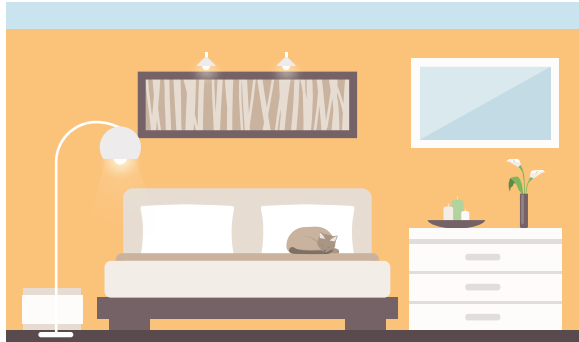
LONG LIFE

ENERGY STAR® certified LED bulbs are rated to last at minimum 15,000 hours. Some LED bulbs are designed to last 50,000 hours or more. Compare that to a traditional incandescent bulb that has a rated life of 1,000 hours. With an ENERGY STAR certified LED, you might not have to change the light bulb for 20 years or more!

ENERGY STAR certified bulbs always come with a manufacturer warranty. When you purchase an ENERGY STAR certified LED bulb, you can rest assured that if the bulb doesn't operate as its suppose to, you're covered. Simply contact the manufacturer for details on how to exchange any non-functioning bulb for free.

FUNCTIONALITY

CLICK THE NUMBERS for more information on ENERGY STAR® certified LEDs, or to purchase bulbs for your home!



1. AMBIENT LIGHTING

Dimmable LED options allow you to change the mood in any room at any time.

2. TASK LIGHTING

Slimmer bulbs are a good fit for hard to reach spaces like under cabinet lighting and make for a great option above cooking spaces.

3. ACCENT LIGHTING

Showcase wall art with LED accent lighting. LEDs don't focus heat and ENERGY STAR certified bulbs have a higher **CRI (color rendering index)** rating, allowing you to showcase your wall art with clear, crisp bright light that doesn't damage your artwork.

4. OUTDOOR LIGHTING

Using wet or damp rated bulbs help to provide bright light and last up to 20 years, so you don't have to change your outdoor light bulbs frequently.

Wet and damp rated bulbs are designed to withstand moisture and are especially well suited for outdoor applications.

- **Damp rated** – choose a damp rated bulb for outdoor applications where the bulb is shielded from the elements, such as a lantern fixture.
- **Wet rated** – choose a wet rated bulb for outdoor applications where the bulb is fully exposed to the elements, such as flood lights.

PERFORMANCE & SAVINGS



WATTS VS. LUMENS

The higher the lumens the brighter the bulb.

Watts measure energy use

60
WATTS

100
WATTS

=

=

Lumens measure brightness

800
LUMENS

1600
LUMENS



ENERGY EFFICIENT

LED bulbs are 80% to 90% more energy efficient than incandescent bulbs. This can have a noticeable impact on your energy costs if you switch all the lighting in your home. In fact, each incandescent bulb that you replace with an ENERGY STAR certified LED can save you up to \$100 over the life of the bulb. Imagine if you switched all your bulbs out for LEDs!



LED PRICES HAVE DROPPED

Over the last five years, prices for LED bulbs have dropped dramatically, from over \$20 per bulb to just \$2 per bulb in some instances.



INSTANT DISCOUNTS

The sponsors of Mass Save provide instant discounts on ENERGY STAR certified LED lighting to help make it easier to switch!

DISCOUNTS ARE AVAILABLE in **stores** throughout the state and **online** through the Mass Save storefront and special limited time offers.



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