Saving energy goes right to the bottom line and it helps the environment. Businesses can control energy costs using energy saving practices and new technologies. Lighting is an easy place to start. New lighting technologies often have a 1 to 3 year payback period, providing a return on investment that makes sense.

Fazoli’s, an ethnic fast food restaurant in western Wisconsin, made lighting changes saving $240 per year and 25,000 kWh of energy, which is the amount of energy used by three average Wisconsin homes in a year. The 4,000 sq. foot restaurant has 80 lights that operate 14 hours a day. Over time, the manager replaced ceiling mounted spot lighting and lights hanging over tables with compact fluorescent bulbs. The simple payback is ten months. Energy savings are going into the marketing budget. They are also considering converting outdoor lighting to energy efficient lamps and replacing exit signs with LED and other signage.

**BUSINESS OWNER REALIZES PAYBACK ON DO-IT-YOURSELF LIGHTING UPGRADES IN TEN MONTHS**

JUST DO IT

You can use these no or low-cost, do-it-yourself practices to make an immediate impact on your bottom-line:

1. Use natural daylight whenever possible; it's free. Turn lights off, especially near windows.

2. Turn off lights when rooms are not occupied.

3. Replace traditional incandescent light bulbs with compact fluorescent lights (CFL) for 75 percent energy cost savings; don’t wait until they wear out to replace them.

4. Replace fluorescent exit signs with long-lasting, low-energy LED (light-emitting diode) exit signs for 90 percent energy cost savings or one year payback.

5. Paint walls and ceiling light colors as dark walls require more energy to produce the same amount of light.

6. Clean lights every 6 to 12 months to keep them free of dust buildup.

This self-assessment guide will walk you through energy saving options in more detail so you can reduce lighting costs.
**Lighting: Additional Opportunities to Save**

- Put lighting where it is needed.

- Consider task lighting (spot lighting) that focuses light on a particular surface. For example, use a desk lamp. Rule of thumb: overall light should illuminate the majority of the space to one-third the task illumination level (20 footcandles overall, 50 to 60 footcandles for task lighting). Eliminate bright light where it is not needed, such as in a hallway.

- Configure switching so lights nearest windows can be dimmed or turned off. Do your electric light and daylight work effectively as a system?

**These measures can have a big payback. Most likely, they will involve a contractor**

- Remove or disable some fluorescent lights in overly lit areas. For example, remove two out of four tubes in a fixture.

- Retrofit fluorescent lamps by changing T12 fluorescent lights to T8 lamps with electronic ballasts (saves ten percent light and 30 percent ballast energy and is easier on your eyes).

- Install occupancy sensors to automatically turn off lights in frequently unoccupied areas, such as restrooms and storage rooms; lighting controls can reduce energy use by 50 percent.

- Install photocells for lights that turn on at dusk and off at dawn.

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**ENERGY SAVINGS CALCULATOR**

**Step ①**

Make a list of the types of lights and controls in your business and their location using the simple inventory form on page 3. Identify light types in the following categories:

- **SI** = Screw-In/Incandescent
- **CFL** = Compact Fluorescent Light
- **FT** = Fluorescent Tube/lamp/bulb
- **LED**
- **EX** = Exit
- **OD** = Outdoor

**Step ②**

**Do a Simple Payback Calculation:**

\[
\text{installed cost of improvement/ annual energy savings} = \text{simple payback (yrs.)}
\]

Lighting replacement with a simple payback of less than four years is a good investment.

**EXAMPLE: FAZOLI’S** (case study from page 1)

\[
80 \text{ CFL} \\
\times \$2.50 \text{ per bulb} \\
= \$200 \text{ installed cost} \\
(\text{labor= } \$0.00 \text{ managing partner changed the bulbs.})
\]

\[
\frac{\$200 \text{ installed cost}}{\$240 \text{ annual energy savings (from utility bills)}} = 0.83 \text{ years payback}
\]
## Energy Savings Inventory

### Customer Information

**Name:**

### Electric Utility

<table>
<thead>
<tr>
<th>Location</th>
<th>Lighting</th>
<th>Length</th>
<th># of Tubes</th>
<th>Type of Lamp</th>
<th>#</th>
<th>Replacement</th>
<th>Controls (occupancy sensors, photo sensors, dimmers)</th>
<th>Comments</th>
<th>Cost Saving Estimates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office</td>
<td>Ceiling</td>
<td>4 FT</td>
<td>2 lamps</td>
<td>T-12</td>
<td>28</td>
<td>28 T-8 lamps</td>
<td>Switch</td>
<td>Check into installing motion sensors too</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ceiling</td>
<td>8 FT</td>
<td>2 fixtures</td>
<td>T-12</td>
<td>2</td>
<td>4 T-8 lamps, 2 fixtures</td>
<td>Switch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desk</td>
<td></td>
<td>Screw-in</td>
<td>100 watt</td>
<td>CFL, 26 watt</td>
<td>6</td>
<td>CFL, 26 watt</td>
<td>Choose CFL wattage by dividing incandescent watts by ~4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hallway</td>
<td>Exit</td>
<td>CFL</td>
<td>24 watt</td>
<td>LED</td>
<td>8</td>
<td>LED</td>
<td>Saves 90% in energy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bar</td>
<td>Sign</td>
<td>neon</td>
<td></td>
<td>LED</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Investigate appropriate options by contacting a contractor, working with Focus on Energy, which is an unbiased, third party expert, and working with your local utility.

**WORKING WITH A CONTRACTOR**
Call 2 to 3 contractors to get quotes for replacing fixtures and ballasts that require electrical work. Most electricians and lighting contractors are familiar with modern energy efficient lighting. Contractors may have suggestions and recommendations that can help you improve your lighting while you save energy.

**FOCUS ON ENERGY**
Focus on Energy Energy Advisors will be able to help make lighting recommendations, identify electricians or lighting contractors and locate stores in your area that sell energy efficient lighting equipment. Focus on Energy can also provide financial assistance to help pay for lighting energy efficiency upgrades. Eligibility for Focus on Energy is based on your electric utility. To see if you are eligible for Focus on Energy, call 1-800-762-7077 or visit www.focusonenergy.com

**UTILITIES**
Although your utility may not participate in Focus on Energy, they may offer assistance with energy efficiency projects. Call your utility to see if they can help.

**PUBLICATIONS**
*Shedding Light on Fluorescent Bulbs; Options for Business Management*
SHWEC pub # 710.AW.9902

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*Next Steps*

Lighting Performance Considerations
- Task visibility
- Visual comfort
- Color appearance
- Light distribution on surfaces
- Flicker
- Glare, direct & reflective
- Shadow
- Aesthetics
- System flexibility & control
- Energy efficiency
- Cost

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Saving Energy is Good For Business:
*Lighting*

SHWEC pub # 625.SG.0508A

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