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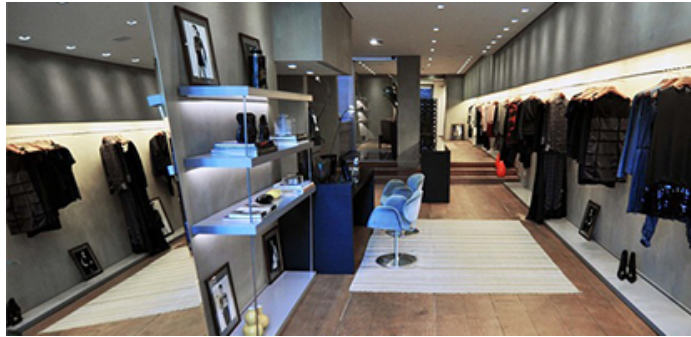
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## How Retail Businesses Can Easily Reduce Energy Consumption and Costs

By Pauravi Shah

According to the United States Department of Energy (DOE), retail buildings account for the largest energy costs of any commercial sector in the country.<sup>1</sup> Those energy costs mean there is significant room for retailers to reduce their utility bills and become more energy efficient.

Fortunately, as the enthusiasm to improve energy efficiency for retail businesses has grown over the past several years, the market has become rife with product options that retailers can use to reduce power consumption in their stores.

Areas like lighting and heating, ventilation and air conditioning (HVAC) present numerous opportunities for retailers to reduce their energy usage. Those efficiency opportunities also allow retailers to save money on their utility bills, provide a more welcoming environment for customers and improve the visual appeal of their own products.

### How to reduce retail lighting energy usage

Reducing retail business energy usage through changes to lighting can be as simple as utilizing daylighting (drawing light from natural sources through windows and skylights) or as complex as installing control devices like timers and sensors. However, the most straightforward way to improve lighting energy efficiency for retail businesses is to replace older, inefficient light bulbs with more modern alternatives.

Two of the most popular and efficient lighting options are light-emitting diode (LED) light bulbs and low-wattage T8 linear fluorescent fixtures. Both of these product categories draw less power than old-fashioned incandescent and high-intensity discharge (HID) bulbs. They also provide significant design and comfort advantages.

### How retail businesses can take advantage of T8 fluorescent light bulbs and fixtures

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How goods are presented plays a major role in driving retail sales. When considering lighting design, take a close look at how more efficient light bulbs and fixtures will impact product presentation. Low-wattage T8 fixtures provide directional lighting, reducing glare and increasing visibility.

T8 fluorescents are also huge energy savers. Newer, high-performance T8s use 40 to 50% less power than older fluorescent bulbs and fixtures, and can lead to 10% savings on monthly electric bills. These low-wattage T8s also produce less heat than older models, which means reduced cooling costs and loads on the store's HVAC units.<sup>2</sup>

Since many commercial light fixtures are still designed for fluorescent bulbs, T8s represent the easiest way to improve energy efficiency in retail businesses. Simply replacing incandescent or older fluorescent bulbs with T8s immediately improves a retailer's energy efficiency profile. T8s can be used for mood lighting, such as in a retail boutique store, or for more immediately practical purposes like large overhead fixtures in storage areas.

### **How retail businesses can take advantage of LED replacement lamps**

LED replacement lamps offer the same directional lighting advantages and reduced cooling loads. But they also have longer lifespans than older bulbs and fixtures (thus reducing maintenance costs and hassle) and they can help bring retail stores up to date with new government energy efficiency regulations.

From a design perspective, LEDs offer more consistent light output and color quality than older bulbs. LEDs also come in a wide variety of models and easily integrate with dimmers, making them ideal for innovative lighting design and highlighting products.

Retailers should find that LEDs can easily improve their store's aesthetic. By seamlessly integrating with dimmer controls, LEDs give the owner or manager greater control over the indoor and outdoor lighting dynamic. Their directional light quality means illumination is focused on the products, and is not being emitted in the scattershot fashion of many older bulbs.

As single fixture light bulbs burn out, use LED replacement bulbs and lamps in their stead. It is important to consider space size and light color consistency when replacing LEDs. The energy savings can be dramatic.

### **How to reduce retail HVAC energy usage**

HVAC accounts for approximately 45% of the energy consumption in the average retail business.<sup>3</sup> As is the case with lighting, the energy efficiency options for HVAC equipment are numerous. One of the most effective ways to reduce retail HVAC energy usage is by installing efficient packaged HVAC unit controls.

Many retail buildings have met their space cooling and heating requirements through packaged units often called rooftop units, since many are located on the roof of a building.

Packaged HVAC unit controls make managing heating, cooling and ventilation much easier. They give retail store owners and managers the ability to more effectively control indoor climate, and thus make their customers more comfortable and happy, which leads to higher profits.

## Slash retail business energy usage with packaged HVAC unit controls

Three of the most popular and effective packaged HVAC unit controls that can improve energy efficiency for retail businesses are:

Advanced Digital Economizer Controls (ADECs). ADECs help optimize the performance of economizers that open and close to let in the optimum of outside air. Under some conditions when it is cool outside but there is still a heating load inside, large amounts of outside air beyond what is needed for ventilation can be used to provide free cooling. Some ADECs have an option that monitors sensors, dampers and other HVAC components, detecting any issues in real time. The ADEC then automatically provides updates on the performance of those components. This feature is called Fault Detection and Diagnostics. The information provided by ADECs can be used to streamline HVAC costs and make evaluating retail HVAC energy usage a much simpler task.

Demand Control Ventilation (DCV). In most commercial businesses, ventilation controls remain constant. But with DCV controls, ventilation air supplies changes based on need. For example, if there are many people in a room, the ventilation systems will sense that and provide more ventilation air. If a room is empty or hardly being used, the ventilation system will cycle down. That adaptive quality means energy is being used more efficiently, lowering monthly utility bills.

Enhanced Ventilation Control (EVC). Retrofit add-on technologies – including EVC kits like Transformative Wave Catalysts – have features of an ADEC or DCV add-on. Transformative Wave Catalysts electronically vary the speed of the blowers providing air circulation to provide only the amount needed to heat or cool the building. This has the potential to save large amounts of energy.

All of the above products can be added to existing packaged HVAC units, often without the need for a complete HVAC overhaul. Download "[The Complete Guide to Working with a Lighting or HVAC Contractor](#)" eBook from PG&E and find out how working with a contractor can help your business implement a strategy to reduce energy usage. Explore other product and incentive options to improve energy efficiency.

### Referenced in article:

1. [Pacific Gas and Electric Company](#)
2. [ENERGY STAR](#)
3. [ENERGY STAR](#)



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Product Manager for Commercial Buildings in Customer Energy Solutions for PG&E, she plays a large role in the products and solutions that support the commercial segment. She is the commercial lighting products lead, and additionally possesses valuable experience with PG&E's Energy Efficiency programs and emerging technologies.



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