

Clean Harbors Environmental Team Manages Waste and Carbon Footprint

Two environmental firms in Northern California were recently recognized for excellence and leadership in interior lighting by the Interior Lighting Campaign. Sustainable Technologies, an environmental engineering firm based in Alameda, worked with Clean Harbors Environmental, a hazardous waste remediation firm based in San Jose to replace troffer lighting in Clean Harbors' transportation consolidation warehouse and offices.

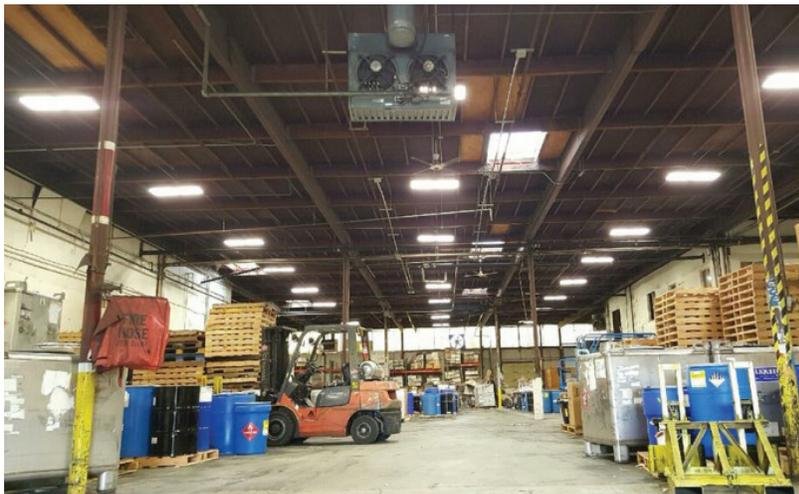
- Highest Percentage of Annual Savings for Troffer Lighting Retrofits – Medium Project: Clean Harbors replaced 44 existing 104-Watt (W) four-lamp fluorescent fixtures on a one-for-one basis with 33-W LED fixtures and added lighting controls for estimated energy savings of 74 percent. The new lights are anticipated to cut energy use by 11,000 kWh.

According to Sustainable Technologies, the project's calculated energy savings are \$950 per year, but actual savings will be greater as most fixtures have motion sensors.

Sustainable Technologies is working with a metal manufacturer on another lighting retrofit project. They anticipate using the same lighting controls and technologies with project completion sometime before May 2017.

Keys to Success

Energy cost savings and improved lighting quality were big motivators for the project. The facility manager knew the existing lighting was substandard and would have



When the monthly energy bill savings were combined with rebates, a zero interest loan program from the utility, and on-bill financing, out-of-pocket costs were reduced to zero for this high-efficiency LED retrofit. Photo courtesy of Sustainable Technologies.



Clean Harbors hired Sustainable Technologies to cut lighting energy use in their San Jose, California location. The troffer lighting retrofit reduced energy use by 74% in the warehouse and office spaces. Photo courtesy of Sustainable Technologies.

2016 ILC Recognition for Troffer Lighting Retrofit Savings (Medium Project)

Energy Savings	11,000 kWh annually, a savings of 74%
Troffers Upgraded	44
Total Area of Project	Entire building with warehouse and office space
Annual Energy Cost Savings	\$950
Payback	2.5-3 years
Location	San Jose, CA

“The rebates really helped with payback. Essentially we just paid for the installation.”

— Ernesto Montenero, Sustainable Technologies

been interested regardless, but when Sustainable Technologies showed him the 2.5- to 3-year payback, the business case was made. All of the troffers selected qualified for rebates; Sustainable Technologies identified the Eaton Metalux Cruze troffers, found through a search of the DesignLights Consortium's™ Qualified Products List.

Staff "love the lights" although they have joked that it's now too bright inside to take naps.

Project Methodology

In addition to energy savings, on-bill financing was a key project driver. The local utility, PG&E, offered an energy efficiency retrofit zero-interest loan program that included energy efficient lighting.

After rebates were subtracted from the total cost of the new lighting, Clean Harbors secured a loan from PG&E for the remainder of the project, and monthly payments were collected on the utility bill until it was repaid in full. Monthly savings from the new lighting exceeded the monthly payments so the new lighting was installed with very little out-of-pocket costs.

Legrand Wattstopper motion sensors were installed throughout the office and parts of the warehouse, with each sensor controlling up to six lights. The sensors have a wide range of detection and turn lights on before they are needed.

The project, although a clear success, was not without its challenges. Utility rebates were essential, but specifications for eligible lighting were exacting and it took time to ensure documentation was properly completed and submitted for the rebates.

Tips and Best Practices

- ▶ Spend time in the planning phase. Accurately assess lighting needs by doing site audits. A variety of luminaire types and sizes means there is no one-size-fits-all replacement.
- ▶ Look for upgrade opportunities to improve system design and performance in terms of energy savings, operating costs, and better illumination.
- ▶ Take advantage of utility offerings such as rebates, on-bill payment and zero-interest loans to improve project feasibility.
- ▶ Use resources like the DesignLights Consortium™ product list to find high-quality, high-efficiency commercial sector lighting solutions.
- ▶ Be prepared to spend time specifying eligible fixtures and filling out documentation.

Learn More

Through the [Better Buildings Alliance](#), members across different market sectors work with the U.S. Department of Energy's (DOE) exceptional network of research and technical experts to develop and deploy innovative, cost-effective, energy-saving solutions that lead to better technologies, more profitable businesses and better buildings in which we work, shop, eat, stay and learn.

Learn more about how to join the Better Buildings Alliance's Interior Lighting Campaign (ILC) at <https://interiorlightingcampaign.org/>. The ILC is a recognition and guidance program designed to help facility owners and managers take advantage of savings opportunities from high-efficiency interior lighting solutions. As of January 2017, ILC participants are collectively saving close to \$13 million annually across approximately 95 million square feet by upgrading to high-efficiency interior lighting solutions.

Find more resources and guidance on lighting in the [Better Buildings Solution Center](#).