

EnergyWatch



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<http://www.attardimarketing.com/energywatch/>
www.energywatchblog.com

Politics is the art of looking for trouble, finding it everywhere, diagnosing it incorrectly and applying the wrong remedies. Groucho Marx:

If you put the Federal government in charge of the Sahara Desert, in 5 years there'd be a shortage of sand. Milton Friedman

Thank God we don't get all the government we pay for. Will Rogers

If you would not be forgotten, as soon as you are dead & rotten, either write things worth the reading, or do things worth the writing. Ben Franklin

Something to Think About...

BASEBALL & LIGHTING – GETTING IT RIGHT

Is there anything more traditional than Baseball and Lighting? American as apple pie so they say.... I just came back from Lightfair. What a show, better than ever. I just love what's happening to the lighting industry. Both the new and "traditional" players are focused on making lighting SMART. Primary reason is technology. That seems like too tame a word for what's happening. We are clearly in the electronic information age and technology is driving many industries, so it is with lighting.

If the super traditional sport like Major League Baseball is using technology to get it right (last major sport to use it), that's the future for the super traditional lighting industry too. GETTING IT RIGHT!

Let there be light is over.....getting it right is not just about delivering light on a surface. Getting it right is about the right lumens in the right application, it's about linking energy efficiency with cost savings, it's about control, sensors, security, daylight harvesting, green solutions, the environment..... integrated networking platforms and business processes that will use lighting to improve the lives of all of us. It's all coming together and the lighting industry will certainly benefit by the technological innovations we just saw at Lightfair. Stay tuned to <http://energywatchnews.com/> as we continue to report on the progress we are making.

Let's go to the video tape and get it right.....



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Our business is changing your future...

LED Issues to Watch...

1. **Burgeoning LED Technology Growth Poised to Explode** - McKinsey projects total global lighting market revenues will grow to \$150 billion a year by 2020. Within that forecast LED lighting will make up the majority of that increase rising to \$90 billion annually by the same year or a CAGR of 30%. By 2020, LED's will make up 60% of the lighting market. Another hugely positive effect: lighting costs will be reduced by 30% a year over the same period. Dramatically lower energy costs, less maintenance, better for the environment and more aesthetically pleasing.
<http://www.marketwatch.com/story/burgeoning-led-technology-growth-poised-to-explode-2014-06-10>
2. **As LED Industry Evolves, China Elbows Ahead** - A year ago, China's light-emitting diode industry seemed like a case study of industrial policy gone awry. Hundreds of factories built all over eastern China, often with lavish clean energy subsidies from state-owned banks and local governments, were operating at half capacity. The share prices of LED manufacturers were plunging. Now demand is surging, and the Chinese manufacturers suddenly find their factories running at full tilt, churning out LEDs faster and cheaper than global rivals. With a price war underway, the Chinese are taking share from top players in the United States, Europe and Japan, the industry pioneers that made crucial technological breakthroughs, and from Taiwan and South Korea, previously the leaders in low-priced LEDs. Read more via: [NYTimes.com](http://nytimes.com)
3. **Chinese LED Lighting Package Manufacturers Booming** - Lighting-use LED component market share last year surpassed 40 percent making it the sector with the largest market demand in the Chinese LED package industry. Chinese LED package manufacturer sales performance in 2013 was mediocre, the LED package market value was up slightly by 16 percent due to plunging prices, according to the latest "2014 Chinese Package Industry Market Report," by LEDinside, a research division of TrendForce. Learn more via [CompoundSemiconductor](http://compoundsemiconductor.com)
4. **Rebates for LED T8 Replacements by BriteSwitch** - At LightFair last week, many manufacturers showcased new LED solutions to upgrade from T12 or T8 to LED solutions, whether new fixtures, retrofit kits or replacement lamps. The rebates for these solutions are off to a very strong start, but may be difficult to find. BriteSwitch looked in their rebate databases to see what's available:
<http://briteswitch.com>
5. **LED Lamps at LFI: Controls, Dimming, and Durability on Display by Maury Wright** - The retrofit lamp area remains the most significant product sector in the LED-lighting market for now, and that fact was evident on the exhibit floor at LightFair International (LFI) with the technology maturing and innovation aplenty. Designs look increasingly like legacy incandescent lamps while feature sets are expanding with enhanced controls, dimming support including dim-to-warm characteristics, and more reliable designs. <http://www.ledsmagazine.com>
6. **Testing the LED A-lamp Market** - CLTC tested 26 LED A-lamp products marketed as alternatives to 60W incandescent A-lamps. Data collected on power (W), voltage (V), luminous output (lumens), correlated color temperature (CCT), color rendering index (CRI), rated life and dimming performance allowed for comparison with manufacturers' claims as well as current lamp quality standards. The results of this testing program are summarized in a final report that is now available on our website. [View the report](#)



7. **DOE Funds More SSL** - The new High-Performance Outdoor Lighting Accelerator portion of the program will lead to the retrofit of 500,000 legacy street lights with LED. Detroit is one of five US cities that will be a part of the accelerator program. The others include Huntington Beach, CA; Little Rock, AR; West Palm Beach, FL; and the greater Kansas City, MO metro area. Under the DOE's counsel, the cities will utilize the specifications developed by the agency's [Municipal Solid-State Street Lighting Consortium \(MSSLC\)](#) for both luminaires and controls to guide the purchase process. <http://www.ledsmagazine.com>
8. **DOE Suspends L Prize[®] PAR38 Competition** - Effective June 13, 2014, the U.S. DOE has suspended the [L Prize PAR38 Competition](#), and no entries will be accepted at this time. The L Prize Competition launched in 2008 as the first government-sponsored technology competition designed to spur development of ultra-efficient, high-performance LED replacement products. A winning entry in the 60W replacement lamp category was awarded the first L Prize in 2011, but no entries have been received in the PAR38 category. DOE will continue to monitor the PAR38 market for performance and price improvements, to consider reopening the competition at a later date.
9. **DOE Announces Selections for SSL R&D Funding Opportunity** - The U.S. DOE has announced the competitive selection of solid-state lighting (SSL) projects to receive funding, in response to the SSL funding opportunity announcement (FOA) DE-FOA-0000973. These one- to two-year projects will focus on the areas of Core Technology Research, which involves the application of fundamental scientific concepts to SSL technology; and Product Development, which involves using the knowledge gained from basic or applied research to develop or improve commercially viable SSL materials, devices, or systems. This is the ninth round of DOE funding. For more information on the selections, visit the [DOE Selections webpage](#) on the DOE SSL website.
10. **DOE White Paper: Keeping Manufacturing in the United States** - Reversing the trend of off-shore SSL manufacturing would have a significant impact on the U.S. economy through the retention of tens of thousands of jobs and of technical expertise and capability, and the creation of new jobs. It could boost the sales of value-added exports, while reducing the level of value-added imports. Perhaps of most value would be maintaining U.S. leadership in the solid-state lighting industry as product advancements are made over the coming years. While solid-state lighting components are already being sourced internationally, research and development remains most intense in the United States and Europe, as does manufacturing of higher quality products. http://apps1.eere.energy.gov/buildings/publications/pdfs/ssl/ssl_whitepaper_july2010.pdf
11. **US Energy Department Funds Energy-Efficient Lighting R&D** - The DOE announced nine research and development projects that will receive funding to support solid-state lighting (SSL) core technology research and product development. The projects will help accelerate the development of high-quality light-emitting diode (LED) and organic light-emitting diode (OLED) products that can significantly reduce energy costs for American families and businesses and ensure that the US remains competitive globally. LEDs are intense sources of light consisting of inorganic materials, where OLEDs are diffuse light sources that consist of organic materials. [Novus Light Today](#)
12. **LED Lightbars Versus LED Troffer Kits** - In addition to high performance fluorescent, LED lightbars and LED troffer kits are two very good retrofit solutions. If anybody wants me to write about LED T8s, I will, but they are not really good. <http://www.tedmag.com/news/Features/LED-Lightbars-Versus-LED-Troffer-Kits.aspx>



13. ENERGY STAR LED Bulb Challenge Wrap Up and New Opportunities - The U.S. EPA announced the successful conclusion of the ENERGY STAR LED bulb challenge and introduce a new marketing opportunity.

- [ENERGY STAR LED Bulb Challenge Wrap-Up](#)
- [New ENERGY STAR Lighting Marketing Opportunity](#)

The results are in, and U.S. retailers sold over 20 million ENERGY STAR certified LED bulbs, in a first-of-its-kind challenge by EPA. Replacing this many traditional bulbs will save Americans more than \$118 million each year in energy costs. EPA is presenting an exciting new opportunity to spotlight your ENERGY STAR LED lighting products and/or promotions through social media and earned media channels. www.energystar.gov

14. Automotive Lighting Market - Global Trends & Forecast to 2020 - Lighting is an essential part of an automobile. In addition, lighting enhances the look of the vehicle, interiors as well as exteriors. Automobile manufacturers have considerably minimized the energy consumption through developments in LED and adaptive lighting technologies. There are major three types of technologies used in automotive lighting such as halogen, Xenon/HD, and LED out of which, halogen is most widely used. The major factors accounting for the growth of automotive lighting market include growing concern towards road safety, lighting legislations set up by respective governments, and higher efficiency of LED automotive lighting technology. <http://www.marketsandmarkets.com/Market-Reports/automotive-lighting-market-1133.html>

15. OLED Materials Market to Reach \$3.7 Billion by 2019 According to NanoMarkets - The ongoing penetration of OLED displays in mobile phones and wearables and renewed prospects for the OLED lighting market will catapult the OLED materials market from around \$900 million in 2014 to \$3.7 billion in 2019. According to the new NanoMarkets report, “OLED Materials Markets– 2014” by 2019, almost 45 percent of the materials revenues for OLEDs will come from the core functional materials (EML, ETL, HTL/EBL and HIL), while the rest comes electrode, encapsulation and substrate materials. More information on the report including a downloadable excerpt can be found here. Read more via [NanoMarkets](#)

16. Light-Emitting Disruption: How LEDs are Changing Commercial Lighting by Doug Chandler - In just a few short years, solid-state technology has erupted in the commercial lighting market, threatening to change the balance of power on lighting’s bucolic hillsides and reshaping the terrain for generations to come. It’s not so much the technology itself, though that is impressive enough. The real change will ultimately be seen in the altered business models of the various players who bring lighting to market. <http://ewweb.com/lighting/light-emitting-disruption-how-leds-are-changing-commercial-lighting>

17. Look at Lighting: LEDs - Pricing No Longer an Excuse by Stan Walerczyk - In the last year, LED performance and pricing have really improved. I have been presenting seminars comparing LEDs with high performance incumbent technologies since the 2011 Lightfair. With the evolution of LEDs, particularly in the last two years, I had to change about 20% of the slides every few months. For example, in mid 2013 LED troffer kits may have not have been that cost effective, but by late 2013, they were. Early this year, I changed the title from ‘LED vs. Everything Else’ to ‘Becoming an LED World, But,’ because LEDs are taking over, but have not completely won yet. 6/13 <http://www.tedmag.com>



18. Philips to Combine Lighting Units into Stand-Alone Company - Philips, is exploring “strategic options” to raise capital from investors for the combined business, including spinning off the combined business in an initial public offering. Last year, Siemens, a German rival, spun off its Osram lighting business after creating a stand-alone unit. The combination will also make it easier for Philips to incorporate its LED technology into its automotive lighting systems, the company said. The company is currently structured around three lines: health care, consumer and lighting. Philips would have three remaining lighting businesses, including a consumer unit that makes conventional light bulbs, after combining the Automotive Lighting and Lumileds businesses, together, the two businesses posted sales of \$1.9 billion in 2013. 6/30 NY Times

19. Samsung Gets into the Smart Lighting Game with a Bluetooth-Enabled LED Bulb - That Bluetooth connection means that the new smart bulb won't require a hub, but instead will connect directly with your phone. Samsung claims you'll be able to control up to 64 of them from one device at a range of up to 2,000 feet (a little over 600 meters). In theory, a mesh network would also get stronger and more robust with every bulb added, making for an appealingly scalable smart-home option. Another highlight of the bulbs is their ability to change color temperature on demand. <http://www.cnet.com/products/samsung-bluetooth-smart-led-light-bulb/>



20. GE Lighting Unveils Wireless Link LED Lamp Family and Starter Kit - GE Lighting has announced the Link family of LED-based lamps that integrate ZigBee wireless connectivity and enable smartphone-based control of lighting. The solid-state lighting (SSL) products significantly undercut the market for ZigBee-based lamps, with the A19 lamps selling at Home Depot for just under \$15 in the US. The retailer's website was promising delivery of the lamps within a week including the 60W-equivalent 2700K A19 lamp, the 65W-equivalent 2700K BR30 lamp, and the 90W-equivalent 3000K PAR38 lamps. The products are priced at \$14.97, \$19.97, and \$24.97, respectively. <http://www.ledsmagazine.com>

21. GE Gets Serious About A-Line; Launches 100 watt Replacement at 100 LPW - GE Lighting engineered its 100-watt A-line replacement ENERGY STAR® LED to achieve 100 lumens per watt (LPW), making it the lighting industry's most efficient ENERGY STAR 100-watt LED replacement. This bulb is one of 40 new LED bulbs and fixtures hitting the market this summer as consumer LED lighting adoption reaches its tipping point.

22. Soraa LED Light Engines - This line of LED light engines uses 50% less power and has a higher center beam intensity (CBCP) than comparable integral LED fixtures, according to the company. Due to their low profile and small diameter, the light engines allow luminaires to be 50% smaller while their heatsink design enables low-temperature operation and a lifetime of 50,000 hr. The products are available in front face diameters from 1 in. to 4 in.; install with standard MR/PAR/AR front mounting rings; are designed to work with an external driver; are compatible with range of dimming and control systems; and are California Title 24 compliant. For more information, visit www.soraa.com



National Energy Issues to Watch...

- 23. *New T8 Fluorescent Lamps Rated to 84,000 Hours, Equaling Service-Life Claims of LED Manufacturers*** - The performance gap between LEDs and fluorescents for overhead lighting just widened with the recent announcement by Osram Sylvania that it is now offering a four-foot T8 lamp with a rated life of up to 84,000 hours. That's about double the life of the high quality T8 lamps typically in use today. Indications are the cost of the new ultra long-life lamp is only marginally higher than other high performance T8 lamps with standard life ratings. LED fixtures typically have a rated life of 50,000-100,000 hours. A much less expensive T8 lamp with an 84,000-hour life would seem to eliminate the longevity argument for LEDs. <http://www.clearenergy.com/blog>
- 24. *2014 LFI Innovation Awards*** - Known as the "New Products Showcase" for many years, the LFI Innovation Awards honors industry innovations for lighting-related products and designs introduced in the past 12 months. Each product was judged by an independent panel of renowned lighting professionals. ALL products that were submitted have been posted for your review and the four main winners are featured under "Most Innovative Product & Other Special Awards." <http://www.lightfair.com/lightfair/V40/lia/>
- 25. *2014 IALD International Award Winners (31st Annual)*** - Sixteen award winners representing architectural lighting design projects from ten countries—representing an increasingly diverse group of award-winning projects for the IALD awards—comprise the winners of the 31st Annual International Association of Lighting Designers (IALD) International Lighting Design Awards, recognized at a presentation held 4 June at the Renaissance Hotel in Las Vegas, NV USA. For full press information, including high resolution images and further details about every 2014 award-winning project, visit <http://ialdawards2014.conferencespot.org/>
- 26. *LIGHTFAIR® International Presentations Posted*** - This year DOE amped up its educational efforts to include even more training sessions, expanded its Q&A sessions to include both DOE and guest experts, and added videos, touchscreen kiosks, and more seating to the booth itself. The LIGHTFAIR booth presentations are now posted on the [DOE SSL website](#)
- 27. *Why Making Lights in America 'Is Not Just An Option'*** - Lighting in America is big business. Not just in the scope of money invested toward new illumination, but also in the sheer volume of electricity required to keep the lights on. In 2012, [the U.S. Energy Information Administration estimates](#) that the U.S. used 461 billion kilowatt-hours (kWh) of electricity to keep the lights on in the residential and commercial sectors. Learn more via [Manufacturing.net](#)
- 28. *USGBC Announces LEED Certification for Six World Cup Stadiums*** - With all eyes on the 2014 FIFA World Cup in Brazil, the USGBC is proud of the fact that six World Cup stadiums have achieved LEED certification, including South America's largest stadium, Maracanã in Rio de Janeiro. The other LEED-certified stadiums for the 2014 FIFA World Cup include Castelao Arena in Fortaleza (LEED Certified), Arena Fonte Nova in Salvador (LEED Silver), Mineirão in Belo Horizonte (LEED Silver), Arena da Amazônia in Manaus (LEED Silver) and Arena Multiuso in Salvador (LEED Silver). <http://www.edcmag.com/articles/95689-usgbc-announces-leed-certification-for-six-world-cup-stadiums>



- 29. Hubbell Lighting Launches Lighting Upgrade Program for Hospitality Industry** - In the U.S., lighting accounts for approximately 23% of a hotel's energy cost. To expedite and encourage savings, Hubbell Lighting announced a new energy efficient lighting program to cut hospitality electricity costs by 60%, translating to a 5.58% increase in profitability. The initiative, called createchange® consists of two innovative offerings from Hubbell Lighting:
- A suite of unique audit tools and other product selection resources that allow hotels to precisely forecast the economic impact of various lighting retrofit strategies and identify any utility rebates that are available.
 - A 90-day risk-free trial program called "Compare in the Air", which allows customers to validate cost saving estimates in buildings or outdoor environments with up to four Hubbell Lighting products. www.hubbellighting.com/solutions/retrofit/applications/hotel-properties
- 30. Cooper SOURCE Awards National Lighting Design Competition** - Now in its 38th year, the SOURCE Awards competition is open to all lighting designers, architects, engineers, professional designers, and consultants who use Cooper Lighting fixtures in an interior or exterior design project. Projects are judged on the blending of aesthetics, creative achievement, and technical performance and the degree to which the lighting met project constraints and design concept goals. Over the competition's 37-year history, winners have been awarded over \$600,000. http://www.cooperindustries.com/content/public/en/lighting/resources/education/source/source_awards.html
- 31. The Path to Disruption: Innovative Technologies & the Electrical Distribution Industry** - The main purpose of this report is to help sort through the hype and explore the potential impact of new technologies on electrical distribution. Most of them are not new to the industry, but as technology's reach continues to expand and change, they have the greatest potential for NAED membership. The report focuses on the following:
1. Customized Lighting
 2. Energy storage
 3. Electric vehicles
 4. Gesture controlled devices
 5. Additive manufacturing
 6. Low cost advanced robotics
 7. Autonomous vehicles
- http://www.naed.org/uploadedFiles/NAED/NAED_Site_Home/Research/NAED_DisruptiveTechnologies_2014.pdf
- 32. Smart Lighting Market – Global Forecast & Analysis to 2014-2020** - The smart lighting technology lead to reductions in the energy level to a greater extent by automatically turning off lights when not needed. This contributes in reducing the overall energy consumption. The smart lighting market is growing at a tremendous rate. It provides a variety of lighting control solutions to reduce the energy consumption in commercial, industrial as well as, residential sectors. For more information please click on: http://www.researchandmarkets.com/publication/mp2tb5i/smart_lighting_market_by
- 33. Global Professional Lighting Market 2014-2018** - The analysts forecast the Global Professional Lighting market to grow at a CAGR of 5.91 percent over the period 2013-2018. One of the key factors contributing to this market growth is the increasing number of professional gatherings. The Global Professional Lighting market has also been witnessing the increasing demand from new markets. However, the increasing threat of rivalry could pose a challenge to the growth of this market. http://www.researchandmarkets.com/publication/m6zoin/global_professional_lighting



- 34. *New Energy Efficiency Standardization Roadmap Establishes National Framework for Action*** - According to the DOE, our nation's buildings account for more than 70 percent of total U.S. electricity use and 40 percent of the nation's total energy bill, at a cost of \$400 billion dollars per year. With 20 percent or more of this energy wasted, comparable reductions in energy have the potential to save an estimated \$80 billion annually. Standards, codes, and conformity assessment programs offer significant opportunities for energy and cost savings and improved energy efficiency capabilities for the nation's buildings. www.ansi.org/eesc
- 35. *ASHRAE/IES 90.1-2010 or Equivalent Adopted in 11 States*** - A DOE ruling required all states to certify they had an energy code in place at least as stringent as ASHRAE/IES 90.1-2010 by October of last year, or justify why they could not comply. Traditionally, 37 states have complied with these rulings. ASHRAE/IES 90.1-2010 contains numerous provisions related to lighting controls, commissioning and documentation, which can be reviewed [here](#) (administrative requirements) and [here](#) To obtain a copy of the standard, visit ASHRAE at www.ashrae.org or the IES at www.ies.org
- 36. *NAED AdVenture Marketing Conference August 4-6 Chicago, IL*** - This Conference focuses on the education and networking needs of industry marketing professionals. From social media to sustainability solutions, you will walk away with innovative ideas that you can implement immediately at your company. The conference will feature high-impact sessions facilitated by a series of presenters who are experts in industry consultations, media marketing, and other related fields. <http://www.naed.org/adventure/>

State Energy Issues to Watch...

- 37. *Smart Street Lighting for Smart Cities Webinar: July 8, 2014 - 2:00 pm EDT*** - Many cities have begun replacing their HPS street lights with LEDs. While the motivation for these replacements typically focuses on cost and energy savings from improved efficiency and longer lamp lifetimes, a growing number of cities are discovering the benefits of incorporating new sensors and networked control into their new lights. Networked street lights provide an ideal platform for a range of innovative smart city applications. <http://www.navigantresearch.com/webinar/smart-street-lighting-for-smart-cities>
- 38. *PECO Customers Save \$350 Million and Counting with PECO Smart Ideas*** - PECO customers have saved more than \$350 million with PECO Smart Ideas, the company's highly successful suite of energy efficiency programs. Since the programs launched in 2009, customers have benefited from more than \$220 million in energy savings and received more than \$130 million in rebates, discounts and incentives on energy-efficient products. More than 500,000 PECO customers have already participated in PECO Smart Ideas energy efficiency programs. Specifically, customers have:
- Purchased more than 9.5 million discounted compact fluorescent (CFL) light bulbs and light emitting diode (LED) bulbs through PECO Smart Home Rebates
 - Recycled 36,985 refrigerators/freezers/AC window units with PECO Smart Appliance Recycling
 - Completed more than 41,000 free energy-saving PECO Smart e-Audits



- 39. Detroit Lighting Authority to Borrow \$185 Million, Expand Streetlight Upgrades** - Detroit's Public Lighting Authority, created to take up fixing nonworking streetlights throughout the city, said Thursday that it will borrow \$185 million in bonds—\$20 million more than it initially had planned—after Standard & Poor's graded the agency's credit risk as relatively low compared with the bankrupt city. Learn more via [Detroit Free Press](#)
- 40. Phoenix, AZ Begins Comprehensive LED Street-Light Retrofit with GE Lighting** - GE Lighting has announced an LED street light project with the city of Phoenix, AZ that will include conversion of 700 high-pressure sodium (HPS) lights to LEDs this year. The city is projecting 60% energy savings from the retrofit and ultimately plans to install LED lighting along 4800 miles of roadway by 2020. The project will encompass 95,000 LED fixtures. <http://www.ledsmagazine.com>
- 41. Modesto, CA to Consider Streetlight Upgrades to LED** - The project calls for Siemens to replace more than 9,000 streetlights, retrofit the exterior and interior lighting at 16 city facilities at a total cost of \$10.39 million, which includes the interest. A city report suggests the city could borrow \$8.4 million over 15 years at 2.75 percent interest to pay for the work.. 6/10 The Modesto Bee
- 42. Modesto, CA Could Pull Plug on Energy Project** - The Modesto City Council could pull the plug on a proposed \$10.76 million deal with Siemens Industry to have the global company replace about 9,500 streetlights with longer-lasting, more efficient ones and conduct other upgrades to reduce the city's energy costs and its carbon footprint. City officials are recommending the council not approve a 15-year agreement with Siemens to finance the work. Officials have called this a self-funded, clean-energy project because the city would use the money it saves on utility bills and operations costs to pay Siemens and have money left over, but city officials now have questions about the project's financing. 6/24 The Modesto Bee
- 43. Cree and Musco Complete LED Lighting Overhaul of San Francisco-Oakland Bay Bridge** - The California Department of Transportation (Caltrans) has completed its LED lighting overhaul to the East Span of the San Francisco-Oakland Bay Bridge. After three years of testing and designing custom fixtures, Musco Lighting of Oskaloosa, IA, USA provided LED lighting featuring XLamp XM-L LEDs from Cree Inc of Durham, NC, USA in order to illuminate the suspension tower and bridge deck. Learn more via [Semiconductor Today](#)
- 44. SMUD Announces Tubular LED Document** - There is a lot of confusion in the industry regarding tubular LED replacement lamps (TLEDs) and retrofit kits in general. Since there are so many options to choose from, it can be difficult to decide which one is best to use. SMUD put together a tubular LED document to help facility/design/contractor folks understand the differences with LEDs. Some of the options include LED replacement lamps, LED retrofit kits with internal drivers, LED retrofit kits with external drivers, and LED light bars. These are important decisions because these technologies will remain in your buildings for a very long time. <https://www.smud.org/en/business/education-safety/workshops-and-training/documents/Tublar-LED-Lighting-Guide.pdf>
- 45. HI City to Replace All Street Lights with LED's** - Changes are coming to street lights on Oahu. The city is moving ahead with plans to replace the current lights with new light emitting diodes, or LED's, over the next several years. The lights are similar to the ones that have been installed as part of the state's H-1 Freeway Rehabilitation Project. The Department of Transportation said any new street lighting projects will use the new LED fixtures. Learn more via [KGMB and KHNL](#)



Monthly Special Feature... *Upgrading Troffer Luminaires to LED*

http://apps1.eere.energy.gov/buildings/publications/pdfs/ssl/led_troffer-upgrades_fs.pdf

Lighting accounts for roughly 20% of the electricity use in a typical commercial building, and the workhorse in these indoor applications has been the linear fluorescent lamp. In 2010, lighting systems using linear fluorescent lamps accounted for over 75% of the lighting service in commercial buildings. Recessed troffer luminaires, commonly available in 1' × 4', 2' × 4', and 2' × 2' sizes, provide the majority of this lighting. The total installed stock of common linear fluorescent luminaires in the United States is estimated to be over 960 million luminaires. Although the installation of LED troffer-style luminaires jumped from an estimated 40,000 units in 2010 to nearly 700,000 units in 2012, LED luminaires still represent less than 0.1% of the troffer luminaires installed in commercial buildings. It may be possible to achieve over 25% energy savings on a national level if LED technology reaches its projected market penetration in troffer luminaires of over 65% by 2030. The energy savings on an individual project can be much greater than 25%. The related economic and environmental benefits are substantial.

Three primary LED options exist for upgrading lighting systems that use fluorescent troffers: replacing the fluorescent lamps with LED replacement lamps, replacing the fluorescent lamps and other luminaire components with an LED retrofit kit, and replacing the fluorescent luminaires with new luminaires designed for LED light sources. Selecting the best option for an installation depends on the current lamp and ballast types and the condition of the fluorescent troffer luminaires, the desired photometric properties of the upgraded lighting system, the accessibility of the ceiling plenum, and the initial and ongoing economic goals for the upgrade. This fact sheet provides guidance on the various factors to consider when deciding on an LED upgrade for a fluorescent system.

An evaluation of LED upgrade options includes assessing the system costs and the impacts on the lighting system performance. LED replacement lamps often provide the lowest cost option in terms of purchasing the LED components. The cost of LED retrofit kits is usually more than replacement lamps, and purchasing new LED luminaires usually is the highest cost. Replacement lamps that simply snap into the existing fluorescent lamp sockets provide the lowest labor costs for installation. However, most products marketed as replacement lamps require further modifications to the luminaire, and will have labor costs similar to products marketed as retrofit kits. Labor costs for installing retrofit kits are generally higher than those for replacement lamps, and depending on the extent of the luminaire modifications required, may approach or even exceed the labor.

Several groups establish performance criteria for troffer luminaires that use LED technology. The Better Buildings Alliance, a collaborative effort between the U.S. Department of Energy and owners, operators and managers of commercial buildings, provides fact sheets, specifications, and webinars related to high efficiency troffer lighting and other building energy products. The DesignLights Consortium (DLC) develops specifications for high efficiency, high quality commercial lighting solutions and maintains listings of qualified products that satisfy the specification requirements.

- Warranty of at least five years;
- Minimum luminaire efficacy of 85 lm/W;
- Minimum CRI of 80 (the BBA Specification also requires a minimum R9 of 0); and
- Minimum of 50,000 operating hours with lumen maintenance greater than 70% of initial lumens.

