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FSG EnergySolutions NEWS

1ST QUARTER 2015

Issue: 1-15



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FSG Comments to Ponder

After yet another brutal winter of near 0° temperatures and superfluous snowfall, FSG has finally dug and thawed out and has hit the ground running for a busy 2015. With the annual Lightfair International Trade Show & Conference in New York City just a month away; FSG teams across the Northeast and the company as whole will be descending on the Big Apple to see the latest and greatest, and future of lighting and controls.

FSG is expanding. Our Utility Services division has been chosen as the exclusive administrator for the South Carolina Electric and Gas, state wide direct install program. We have opened a satellite office in beautiful Charleston, South Carolina to support the contract. Combining with a team of qualified contractors, our new office can have a competitive edge in the market.

Don't forget April 22 is Earth Day! Do your part to reduce energy consumption in your building.

Andrew Ghilino
Facility Solutions Group

<http://www.fsgi.com/EMN/newsletter.pdf>



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Target Stores are one of the first retailers to test a European strategy to reduce operating costs and maintenance through the utilization of automated fault detection and diagnostics (AFDD). This solution is designed to continuously measure and evaluate the operational characteristics of a facility's or a portfolio's mechanical systems against the original manufacturer's specifications and identify any deviations. FSG competed against 15 major companies for the Target contract.

When there is any deviation from the optimum performance, the AFDD system uses continuously updated algorithms to diagnose and correlate the problem(s), like a dirty filter or coil, and report the problem along with the increased operating costs if not addressed. The "faults" are rated between 1 – 10 in severity. Business rules are established with the customer's input and if needed, the system can automatically dispatch a service tech with a diagnosis of the problem to their PDA.

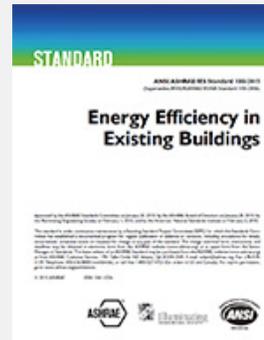
Target expects to reduce its maintenance costs, extend its equipment service life, and lower its

National EnergySolutions News:

1. ***The International Year of Light in 2015*** - A global initiative which will highlight to the citizens of the world the importance of light and optical technologies in their lives, for their futures, and for the development of society. On 20 December 2013, The United Nations (UN) General Assembly 68th Session proclaimed 2015 as the **International Year of Light and Light-based Technologies**. This International Year has been the initiative of a large consortium of scientific bodies together with UNESCO, and will bring together many different stakeholders including scientific societies and unions, educational institutions, technology platforms, non-profit organizations and private sector partners. <http://www.light2015.org/Home.html>
2. ***New Energy Efficiency Standards for Fluorescent Lamps*** - The DOE has released two new standards to improve energy efficiency efforts that apply to general service fluorescent lamps and automatic commercial ice makers. The latest benchmarks are expected to reduce carbon emissions by over 435 million metric tons and save homeowners and businesses up to \$78 billion on electricity by 2030. Noting that the lamps are used for an average of 4,000 hours in the commercial environment and 4,500 hours in the industrial sector every year, the DOE estimates that the updated efficiency requirements will save over \$15 billion on electricity. <http://www.energy.gov/articles/new-energy-efficiency-standards-help-americans-save-money-saving-energy-cut-carbon>
3. ***NEMA Publishes ANSI C82.77-10-2014 American National Standard for Lighting Equipment—Harmonic Emission Limits—Related Power Quality Requirements*** - This standard specifies harmonic limits, their methods of measurement, and power factor for lighting equipment. With the increased use of sensitive electronic equipment, harmonic distortion on power lines is an ever-increasing issue for residential, commercial, and industrial users. Developing a standard that specifies the limits of total harmonic distortion helps ensure that a manufacturer's equipment meets industry guidelines and protects the overall quality of the power system. [ANSI C82.77-10-2014](http://www.nema.org) may be purchased for \$69 in electronic or hardcopy format on the NEMA [website](http://www.nema.org). www.nema.org
4. ***High Color Rendering Can Enable Better Vision without Requiring More Power*** - An article advocating for high color rendering in consumer lighting products and the policies that support their adoption is now available. The paper is a collaboration between CLTC <http://cltc.ucdavis.edu> the University of British Columbia and the National Research Council of Canada. The article focuses on the tradeoff between color rendering accuracy and lamp efficiency to show that high color rendering accuracy is appropriate and, contrary to a common misconception, does not intrinsically require greater electrical energy consumption. The article appears in the IES LEUKOS: ["High Color Rendering Can Enable Better Vision without Requiring More Power"](http://www.iesna.org/leukos)

5. **ASHRAE/IES Publish Updated Standard on Energy Efficiency in Existing Buildings** - A newly revised standard from ASHRAE and IES seeks to provide greater guidance and a more comprehensive approach to retrofit of existing buildings for increased energy efficiency.

ANSI/ASHRAE/IES Standard 100-2015 provides comprehensive and detailed descriptions of the processes and procedures for the retrofit of existing residential and commercial buildings in order to achieve greater measured energy efficiency. Appendices are included for life-cycle cost analysis procedures as well as identification of potential energy conservation measures. <http://www.techstreet.com/ashrae/products/1891323>



6. **IES Publishes Two New Outdoor Lighting Standards** - The Illuminating Engineering Society of North America (IES) has published two new recommended-practice standards for outdoor lighting that are of relevance to SSL because of its growing dominance in outdoor lighting applications:

- ☀ IES RP-20-14 (“Lighting for Parking Facilities”) is intended to optimize pedestrian and vehicle safety as well as energy conservation, and also addresses light trespass.
- ☀ IES RP-33-14 (“Lighting for Exterior Environments”) focuses on such issues as light trespass and sky glow and is intended to help lighting designers and specifiers determine the proper lighting zone specifications for particular applications. Purchase online: [IES store](#)

7. **NEMA Publishes ANSI C82.77-10-2014** - American National Standard for Lighting Equipment–Harmonic Emission Limits–Related Power Quality Requirements. Specifies harmonic limits, their methods of measurement, and power factor (PF) for lighting equipment. This standard covers all types of lighting equipment that is used for general illumination typically found in residential, commercial, and industrial applications. <http://www.nema.org/Standards/Pages/default.aspx>

8. **Smart Homes Market Worth \$58.68 Billion by 2020** - The global smart homes market was valued at \$20.38 billion in 2014 and is expected to reach \$58.68 billion by 2020. North America will lead the chart driven by gaining traction for safety, peace of mind, increased awareness and better product offerings. The benefits of smart homes can only be realized if the technology becomes affordable for common people and accessible to those for whom it is essential. Smart homes refer to a residence equipped with computing and information technology devices that anticipate and respond to the needs of the residents; thus, working towards enhancing their comfort, convenience, security, and entertainment through the automation of technology within a home. <http://www.tedmag.com>

9. **Lighting Applications for Mobile Devices** - See the complete list at: <http://www.lightsearch.com/resources/mobileapps/index.html>

energy consumption – all of which shrinks their carbon footprint. AFDD has a tremendous need for information, which is where FSG Energy steps in with the implementation of a Multi-Protocol Exchange Web-based facility data router called the Mediator manufactured by Cisco. Sensus MI is our FDD partner on this project.

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<http://www.hubbell-automation.com>

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www.maxlite.com/

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10. EPAct Tax Deduction Extended - In late December 2014, the Tax Increase Prevention Act of 2014 extended the EPAct Tax Deduction by one year, allowing projects that were put into service between Jan. 1, 2006 and Dec. 31, 2014 to qualify. In order to be eligible for the Commercial Building Tax Deduction, properties must meet several design criteria such as minimum lighting power density levels, correct illumination levels and control provisions. <http://www.briteswitch.com/epact.html>

11. NEMA Publishes ANSI C78.375A-2014 - *American National Standard for Electric Lamps—Fluorescent Lamps—Guide for Electrical Measures*. The standard describes the procedures to be followed and the precautions to be observed in obtaining uniform and reproducible measurements of the electrical characteristics of fluorescent lamps under standard conditions when operated on alternating current circuits. ANSI C78.375A may be downloaded or purchased in hard copy for \$75 on the [NEMA website](http://www.nema.org)

12. NEMA Publishes ANSI C78.81-2014 - *American National Standard for Electric Lamps—Double-Capped Fluorescent Lamps—Dimensional and Electrical Characteristics*. In this updated version, eight datasheet revisions, four new datasheets, and additional information for high-frequency electronic ballast design are included. The standard establishes the physical and electrical characteristics of fluorescent lamps intended for application on conventional line frequency circuits and electronic high-frequency circuits. It should be noted that only double-based lamps of the regular linear shape are included. www.nema.org

13. NEMA Publishes ANSI C136.14-2014 - *American National Standard for Roadway and Area Lighting Equipment—Elliptically Shaped, Enclosed Side-mounted Luminaires*. This standard covers dimensional, maintenance, and light distribution features that permit the interchange of enclosed, side-mounted luminaires for horizontal-burning HID lamps and other light sources used in roadway and area lighting equipment. This type of luminaire has traditionally been used for street or roadway lighting, and has commonly been referred to as “cobrahead” style luminaires. www.nema.org

14. A Device that Follows You by Day and Zaps You with Corrective Light by Night - According to a [story by the BBC](http://www.bbc.com), Rensselaer Polytechnic Institute has come up with the Daysimeter, a means to ensure that the denizens of far northern climes in Sweden and similar latitudes expose themselves to enough proper light to maintain their mental and physical well-being during the dreary days of winter. The premise is that people need exposure to a certain amount of sunlight to keep their circadian rhythms in order, lest nasty things set in such as depression. Slung around your neck, the Daysimeter records how much sunlight has hit you over the course of your day (circadian light-dark patterns). Arrive at home that night, and that information transmits to a hub, which ascertains exactly what you need: No, not a stiff drink, but an extra dose of light, which the hub then instructs your home's smart lamps to deliver. <http://www.luxreview.com>

EiKo
LitespanLED.EiKO.com

Osram Sylvania
www.osram-americas.com

Green Creative
www.greencreative.com

RAB Lighting
www.rabweb.com

15. DOE Issues New Fluorescent Lamp Regulations - The U.S. Department of Energy (DOE) has issued new energy standards for general-service fluorescent lamps that are expected to reduce availability of standard 4-ft. linear and 2-ft. U-bend 32W T8 lamps as well as some reduced-wattage T8 lamps. The rules go into effect January 26, 2018. After that date, distributors may continue to sell their inventories of non-compliant lamps until these are exhausted. DOE's 2010 National Lighting Inventory estimated that 20% of all lamps in the commercial building sector and 44% in the industrial sector are 4-ft. T8. In 2010, DOE estimated that there were 532 million 4-ft. linear T8 lamps and 14 million T8 U-bend lamps installed in commercial and industrial buildings in the United States. <http://lightingcontrolsassociation.org/doe-issues-new-fluorescent-lamp-regulations/>

16. NEMA Urges Senate Action on Energy Savings and Industrial Competitiveness Act - Senators Rob Portman (R-OH) and Jeanne Shaheen (D-NH) reintroduced the legislation, first introduced in 2011, to stimulate greater energy efficiency across the U.S. economy. According to the Energy Information Agency, the combined annual energy costs for U.S. commercial buildings and industrial facilities total \$202.3 billion, and more than 30 percent of the building's energy use is inefficient. A modest ten percent improvement in efficiency would save \$20 billion annually <http://www.nema.org>

17. Philips Hints at Plans for Divestiture of Lighting Unit, Lumileds Deal is Near - In advance of its annual general meeting that will take place on May 7, 2015, Royal Philips has said that Philips Lighting will likely be divested via a limited initial public offering (IPO) of shares next year. The sale of the combined [Lumileds](#) LED and automotive lighting businesses could happen in weeks and Philips is also entertaining offers for the OLED lighting business. Interested parties are: private equity firms CVC and KKR, Bain Capital and a Chinese consortium that might include Lattice Power. <http://www.ledsmagazine.com/articles/2015/03/philips-hints-at-plans-for-divestiture-of-lighting-unit-lumileds-deal-is-near.html>

City & State EnergySolutions News:

18. Philips Supplies Dynamic LED Lighting for Madison Square Garden - The Madison Square Garden Company (MSG) has installed a programmable color-capable, LED-based solid-state lighting (SSL) system on the outside of the iconic sports venue located on Manhattan in New York City. The Philips Lighting SSL products located in cove channels of the building and around the roof ring can be used to present dynamic light shows and effects on the façade of the venue and can be programmed to promote the home team's colors for an upcoming event. <http://www.ledsmagazine.com>



19. Constellation / FSG Awarded Contract by Port Authority of NY and NJ for \$25.8 Million Energy Efficiency Upgrade - Constellation today announced that it has been awarded phase 2 of a contract in energy efficiency and water conservation measures. Phase 2 of the project includes the installation of more than 5,000 LED exterior lighting fixtures at the George Washington Bridge, the Holland and Lincoln tunnel Roadways, the Goethals Bridge and the Outerbridge Crossing. Constellation will also install efficiency upgrades at the administration buildings for the tunnels and bridges including: interior lighting and building automation controls. 1/22 BUSINESSWIRE

20. New York State Adopts Outdoor Lighting Legislation - New York Governor Andrew Cuomo has signed into law the “Healthy, Safe and Energy Efficient Outdoor Lighting Act,” which establishes requirements for outdoor lighting installed by state agencies. The bill requires the use of properly shielded luminaires to prevent unnecessary up- and side-lighting, thereby reducing light trespass and sky glow. http://www.ies.org/LDA/E-newsletter/2015/January/newswire/2015_01-mlo.cfm

21. Con Ed Offers Attractive DR Incentives for Large Commercial Buildings - New York's Con Edison has some attractive incentives to offer the owners of large commercial buildings who participate in the utility's summer demand response programs. The program will pay the owner of a building or buildings a maximum of \$500,000 over three years for each megawatt of power saved. One program notifies customers that they should begin conserving within at most two hours. The other notifies customers 21 hours ahead of time.....customers can enroll in both programs. Eligible customers must have interval meters which track electricity use at 15-minute intervals. <http://www.smartgridnews.com>

22. Connecticut LED Street Light Program Launches Municipal ESCO Purchases - ESCO Energy Services is set to receive its first LED street light conversion orders under the Connecticut Conference of Municipalities' Street Light Conversion Program. In a five-year partnership, it will enable municipalities to both purchase existing utility-owned street lights and convert those poles to LED-based fixtures. The ESCO Energy Services program goes beyond the typical retrofit project because it will allow municipalities that don't own their street light inventory to purchase those lights from the local utility. Moreover, the offer includes the option to install networked controls and the management software and tools needed to manage the inventory both in terms of maintenance operations and in dimming the lights when appropriate for maximum energy savings. ESCO Energy Services said it is in negotiations with 20 of the 153 municipalities that comprise the CCM membership and the company projects the potential to close to \$25-\$30 million in CCM LED street light projects during the next five years. <http://www.ledsmagazine.com>

23. New Minnesota Vikings Stadium to Install High Output LED Lighting from Ephesus Lighting - The New Minnesota Stadium has the capacity to seat up to 72,000 fans. In addition to housing the NFL franchise beginning in 2016, it will also host a wide assortment of events, including Super Bowl LII (2018), the 2019 NCAA Final Four, a potential Major League Soccer franchise, collegiate baseball and more. Ephesus manufactures

the brightest LED on the market and is the only stadium-designed lighting system listed under Design Light Consortium's (DLC) quality, performance and energy efficiency requirements. The DLC certification enables facilities to receive energy incentives from utility providers. It is projected to consume 75% less energy as compared to a traditional metal halide system. Ephesus fixtures are powered by Cree LED's. 1/28 AP

24. CUB Report: Efficiency Overtakes Electricity Competition as Most Reliable Way to Cut Power Bills - Citizens Utility Board (CUB), which gives homes customized money-saving plans, is among the most accessible of Illinois efficiency programs—it's free and all customers can use it regardless of their power supplier. The free service, managed by CUB and the software firm C3, based in Redwood City, CA, features simple actions for homes on modest budgets, including installing efficient lighting and unplugging kitchen appliances. To join, customers can take your ComEd bill, visit www.CUBEnergySaver.com hit "Register Now," and follow the instructions to link to their ComEd account. 3/03 PR Newswire

25. City of Arlington to Save \$14MM through Landmark Energy Program Featuring LED Streetlights - The Arlington, TX project www.arlingtontx.gov will upgrade energy efficiency performance across 22 City sites, including Ott Cribbs Public Safety Center and the Elzie Odom Recreation Center. In addition to these infrastructure changes, the City is excited to be the first major city in the southwest to retrofit 10,500 old HPS streetlights with new high performing LED fixtures. OpTerra Energy Services will guarantee the annual energy savings. 3/12 PR Newswire

26. Understanding New Title 24 Regulations - New construction or renovations to existing buildings in the Golden State must adhere to more stringent energy standards, according to recent revisions to the **California Building Standards Code, Title 24** <http://www.energy.ca.gov/title24/> of the California Code of Regulations, also referred to as The Energy Efficiency Standards for Residential and Nonresidential Buildings. Established in the 1970s, Title 24 was implemented to reduce California's energy consumption, particularly as the state's growing population increased the demand for electricity. Nearly four decades later, efforts continue to enhance this mission through periodic updates of requirements related to a multitude of structural components ranging from lighting to heating and cooling. <http://go.gelighting.com/rs/gehbsals/images/GE-LED-Commercial-Lighting-Title-24-Updates.pdf>

27. California's Title 24, Part 6's New Standards Mandate Flexibility in Controls and Greater Lights-Out Time by Bill Millard - With the latest version of Title 24, Part 6, the California skyline is about to surrender some of its 24/7 nocturnal glow. The goal is for offices, corridors, stairwells, library stacks, parking garages, and other intermittently used structures to cease producing widespread lighting waste and light pollution. Retrofitted buildings will have to incorporate task-appropriate technologies; in new construction, sensors, timers, and dimmers will be standard equipment. For designers, contractors, and owners, this means some substantial up-front costs, and for the controls industry, some expanding opportunities. What it Does—and Doesn't—Mean <http://www.bsc.ca.gov/> http://www.archlighting.com/codes-and-standards/california-title-24-part-6-update_o.aspx

28. City of San Diego Partners with GE to Improve Traffic, Reduce Energy Use and Costs - The Intelligent Cities partnership will explore enhanced sensors and Predix® -- GE's software platform for the Industrial Internet which allows for advanced lighting control, traffic and parking optimization, and environmental monitoring and analysis. The work on the project, expected to begin in the spring, will focus on an assessment of a portion of LED street lights and sensors located throughout the city. <http://www.tedmag.com>

29. Desert Sands USD completes largest Prop. 39 Energy Project in California - From \$6.4MM in Prop. 39 Funds to \$19.5MM in long-term energy savings, Desert Sands partnered with OpTerra Energy Services to deliver energy efficiency upgrades across campuses on an aggressive timeline. The following energy efficient and renewable energy upgrades are transforming the quality of both building performance and comfort for over thousands of students every day:

- ☀ Over 6,700 new LED classroom lighting fixtures across 5 sites
- ☀ New solar shade parking canopy at Palm Desert High School
- ☀ 153 new HVAC units at La Quinta High School 3/11 AP

30. Title 24 Part 6 Essentials - Standards & Technology Classes by CLTC - Here are upcoming Title 24 classes that CLTC staff is scheduled to teach. Information about registering for the classes can be found [here](#):

- ☀ March 31 - Retail Lighting, Pipe Trades Training Center, San Jose
- ☀ April 15 - Office Lighting, Pacific Energy Center, San Francisco
- ☀ April 22 - Office Lighting, CLTC, Davis
- ☀ April 30 - Residential Lighting, Pacific Gas and Electric Company's Energy Training Center, Stockton

LED EnergySolutions News

31. How to Keep Google from Owning the Lighting Industry - If you're a legacy lighting company, what can you do to stave off the industry encroachment of internet and IT powerhouses like Google, and survive the transition to lighting's digital LED future? Easy! Simply become the Google of lighting before Google does. Software is the rip cord. It will help connect lights to information networks and make lighting part of the fledgling 'Internet of Things' in which anything that can be digitized will be. Consumers will turn lights on and off and alter their brightness and colour remotely via software apps. Cities will use streetlights to monitor traffic, crowds, air quality and many other things, feeding information into central systems. The industry often refers to the movement as 'solutions and services.' Companies like Google, Apple and Cisco have taken note, and are beginning to offer related products in a move that could build into a full-on intrusion into the lighting industry. <http://www.luxreview.com/news/559/how-to-keep-google-from-owning-the-lighting-industry>

32. *Top LED Scientists Predict Laser Based Lighting at DOE 2015 SSL R&D*

Workshop - At January's DOE SSL R&D Workshop, three leading LED researchers predicted laser diodes will be the light source of the future. Steven P. DenBaars, James Speck, and Nobel Laureate Shuji Nakamura, all with the UCSB SSL and Energy Center spelled out the advantages of laser diodes over LEDs, including absence of droop, smaller size, and optical control factor.

http://energy.gov/sites/prod/files/2015/02/f19/denbaars_led-challenges_2015.pdf



33. *An LED Lighting Platform in the Cloud* - [Terralux](#) has launched a new product called LEDsense, which is a cloud based lighting system with a brain. It has a sense of smell, sight and touch its environment and control a building's energy usage through the cloud. LEDsense senses the temperature of a room all through the LED lights – if it is too hot or cold and can control heating and cooling systems based on weather and room occupancy levels. It can detect if anyone is present in the room as well as detect carbon dioxide and monoxide. If the LEDsense lighting system “sees” people enter a room it increase the lighting; dim the lights as people depart. Advanced sensors provide safety and security information and alerts. The technology then sends any data back to the building owner through the cloud and the safety and security can be optimized based on that data. <http://www.forbes.com/sites/jenniferhicks/2015/01/31/an-led-lighting-platform-in-the-cloud/>

34. *Cruise Ship Operator Cuts Energy by More Than Half with Major LED*

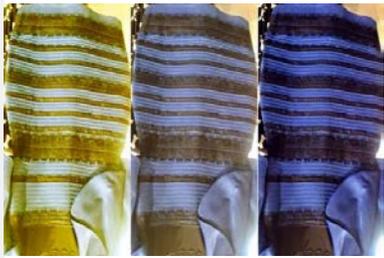
Upgrade - Holiday cruise company Costa Cruises has installed 300,000 LED luminaires in its cruise ships to cut CO₂ emissions and reduce energy consumption by 60 per cent. Switching from 50W bulbs to 7W LED technology increases energy efficiency by more than halving each ship's electricity consumption required for lighting. Philips carried out the relamping of the first three ships in 2013, with the remaining seven completed by December 2014. Philips' MasterLED spotlights and CoreProLED tubes were specified to provide a 'bright, warm and inviting' ambience. <http://www.luxreview.com>



35. *A Different Kind of Bug Lamp* - Lighting Science Group, Melbourne, FA, and Intellectual Ventures' Global Good, Bellevue, WA, announced a research agreement to collaborate on the development of next-generation light technologies for pest control. Based on Global Good's photonic fence invention and Lighting Science's light-control technology, the joint development effort will focus on field-ready prototypes that offer an environmentally-responsible alternative to chemical pesticides. <http://electricalmarketing.com>

36. *The Dress: a Lesson in Lighting, Says US Energy Secretary* - @ernestmoniz

"My take on The Dress: ✓ □ It's brown & blue ✓ □ Good lighting is everything" <http://energy.gov/eere/ssl/rd-program>



Secretary Moniz grabbed onto the garment to promote LEDs. Some of the better explanations that I've seen boil down to this: the human brain knows whether an object is bathed in a lot of bright light, obscured in relative dark, or whether the light that's hitting it is somewhere in between. The amount of light that falls on an object can distort its color appearance.

Like an automatic camera, the brain constantly adjusts to minimize these distortions. The blue and black or white and gold Dress happens to stand in a mix of bright backlight and dark front shadow. Some brains overcompensate. Watch the video:

<http://www.luxreview.com/article/the-dress-a-lesson-in-lighting-says-us-energy-secretary>

37. *The Internet of Things Is Lighting's Chance to Take Things Up a Gear* - "In

the future you will only need one type of sensor module as the input for your fire alarm, security system, HVAC and lighting control" The latest technological change on everyone's minds is the internet of things (IoT), a world where just about everything is connected to the internet. Many people are still struggling with this concept... Don't worry about this – imagine a world in which all of a building's subsystems can talk to each other along a unified protocol, and integrate together in a seamless intuitive interface, reacting to the needs of users with minimal effort. But how do you get this stuff into buildings? If only there were a network that already covered the whole of a building... maybe one that people were already looking at upgrading in order to make energy savings, providing an opportunity to add new technology... Wait a minute... There we have it: lighting's role mapped out as the essential element in the IoT <http://www.luxreview.com/article/the-internet-of-things-lighting-s-chance-to-take-things-up-a-gear>

38. *Connected Lighting Alliance Hosts a Multi-Vendor Zigbee LED Lighting*

Demo at CES - Major players in lighting and controls, including Philips Lighting, Osram Sylvania, GE Lighting, Lutron, LG Electronics, and Leedarson, show interoperable SSL products at the mammoth Consumer Electronics Show. Formed to help proliferate networked solid-state lighting (SSL) and smart lighting applications, The Connected Lighting Alliance <http://www.theconnectedlightingalliance.org> selected ZigBee Light Link as the standard of choice for wireless connectivity and control in residential applications back in 2013. Zigbee Light Link was published back in 2012 by the ZigBee Alliance adding lighting-specific control and commissioning capabilities layered on top of the standards that define baseline ZigBee wireless networks. <http://www.ledsmagazine.com>

39. Turin Follows Milan in Going LED - The Italian city of Turin is turning 55 per cent of its public lighting to LED. Turin follows Milan in choosing to introduce LED luminaires from Italian manufacturer AEC, and hopes to achieve ‘significant cost reductions and energy savings’. AEC won a tender with Turin’s electricity supplier Iren Servizi e Innovazione to supply 45,000 of its Italo LED luminaires. The deal with Turin follows the rollout of 85,000 luminaires in Milan. <http://www.luxreview.com/article/turin-follows-milan-in-going-led>



40. LED Lighting: Market Shares, Strategies, and Forecasts, Worldwide, 2015 to 2020 - Next generation lighting achieves a complete replacement of incandescent filament bulbs with LED lighting that is more energy efficient, lasts longer and has a significantly lower cost of operation. Market shifts provide entry points for new competitors. They create significant opportunities for participants to achieve rapid increase in market share. Shifts in market share are anticipated as vendors move up the value chain to increase returns on investment. For more information, click on: http://www.researchandmarkets.com/publication/mnwfzrd/led_lighting_market_shares

41. The Eight Biggest Trends in Retail Lighting by **Robert Bain** - Building brands, driving sales, controlling costs, and preserving the all-important ‘look and feel’ ... who said retail lighting was easy? Here are the eight biggest trends influencing retail lighting in 2015.

- ☀ **Energy-saving LED retrofits**
- ☀ **Branding with light**
- ☀ **New color technology**
- ☀ **Lights that do new things**
- ☀ **The flight to quality**
- ☀ **Overcoming the fear**
- ☀ **Justifying the spend**
- ☀ **Clients are smartening up**



<http://www.luxreview.com/article/the-eight-biggest-trends-in-retail-lighting>

42. Nest Adds 15 New Partners, Including Philips Hue Lighting and LG - The Google owned company Nest has been steadily expanding their services through their ‘Works with Nest’ program, teaming up with other hardware and software companies to bring extra functionality and smarts to your home, and convenience to your thermostat. Perhaps the most recognizable new partner to the smart home enthusiasts out there, is Philips. Philips has a line of color changing light bulbs, called Hue that can now be controlled by your Nest thermostat and Protect smoke alarm. A simple use is to flash the lights in the house when the smoke alarm goes off, but I suppose you could tie the color of the Hue lighting to the temperature of the home, just for fun. <http://www.androidauthority.com/tag/Nest/>

43. Rebate Trends for 2015 - 2015 is shaping up to be another great year for rebates and incentives in North America. Over the past few months, rebate organizations have been busy updating their offerings and preparing their 2015 programs. While some programs ended at the end of 2014, others programs have received new funding and started providing rebates again. **Right now, 72% of the country is covered by an active commercial lighting rebate program.** <http://www.briteswitch.com/news/2015RebateTrends.html>

44. Rebates for LED Replacement Lamps Drop 32% - This year, we've seen a larger than expected drop in the average rebates for LED replacement lamps such as PARs, MRs, A-lamps and decorative lamps from **\$11.12 in 2014 \$7.51, a 32% decline.** This change comes as rebate programs try to adjust their offerings to match the price decreases of many LED lamps. There are lots of programs for these lamps though, so it still makes a great opportunity for those customers using halogen or incandescent lamps:

45. LEDinside Estimates 2015 LED Industrial Lighting Market to Reach \$2.37 B - And by 2018 the scale will reach \$3.935 billion. LED high and low bay lighting fixtures have become more attractive for industrial lighting users for replacement purposes. Furthermore, LED lighting products have seen additional increases in performance and decreases in price. These improvements, together with industrial lighting products' high profit margins, have made industrial application the most competitive market for LED package and LED luminaire companies for the 2015-2016 period. LED high/low bay lighting products are the largest in terms of market share. It is expected 80W-250W LED high/low bay light products will become mainstream in the market. <http://www.ledinside.com>

46. NEMA Publishes ANSI C136.16-2014 - American National Standard for Roadway and Area Lighting Equipment—Enclosed, Post Top-mounted Luminaires. This standard is useful to roadway and area lighting manufacturers, municipalities, utilities; and provides requirements to allow for the interchangeability of enclosed, post top-mounted luminaires. It covers dimensional, maintenance, and light distribution features that permit the interchange of enclosed, post top-mounted high-intensity discharge lamps, solid-state light sources (i.e., LEDs), CFLs, and induction luminaires whose center of mass is approximately over the mounting tenon. www.nema.org

47. Smart Street Lights to Reach 40 Million in Four Years - ABI research forecasts that the intelligent network-friendly LEDs will reach an installed base of 40 million by 2019. Smart street lights have gradually become extremely popular globally. For example, the city of Madrid, Spain, announced last month that it will replace 225,000 street lights. Buenos Aires, Argentina is in the midst of a 91,000 street light upgrade, which accounts for 70 percent of the city's lighting. Another reason for the popularity of smart street lights is that they are closely associated with smart cities. In a smart city context, smart street lights are often considered the basis or foundation that other smart cities applications. <http://www.wallstreetdaily.com/2014/12/03/smart-street-lights/>

48. Lights That Track Where You Are - You arrive at the supermarket in a hurry with a list of things to buy. You have your shopping list saved in an app on your phone. It immediately generates a map showing you the quickest route around the store to pick up everything you need. It guides you around the aisles with a moving arrow on a map. All of this is now possible, all thanks to LED lights. The technology is called visible light communication (VLC) and it works by encoding data programmed into the light driver from normal LED luminaires. Who is working with VLC:

- ☀ Point your phone at an item lit by **Fujitsu's** spotlight and the camera reads data in the reflected light to provide you with information about the item.
- ☀ **Philips Lighting** is trialing a positioning system at a museum in the Netherlands and hopes to apply the technology to retail applications too.
- ☀ **EldoLED** (parent company Acuity Brands) has been running a large-scale trial of its positioning system with a US retailer, and is working on live installations for two retail clients.
- ☀ A test installation at Green Apple Books in San Francisco features luminaires with **Bridgelux** Decor Series LED modules and built-in Bluetooth.
- ☀ **Bytelight** is working on other trials that combine Bluetooth with VLC.
- ☀ **GE Lighting** has two trials of positioning systems underway with retailers in Europe, and two more in the US.
- ☀ <http://www.luxreview.com/article/lights-that-track-where-you-are>

49. DOE on LED Lamps Sold at Retail Stores - Two recent DOE [CALiPER](#) reports add key insights to our knowledge of how those lamps perform. The reports follow on the heels of CALiPER [Retail Lamps Study 3](#), which was released last year and showed that LED lamps have quickly improved.

- ☀ [Retail Lamps Study 3.1](#) focuses on the dimming, power quality, and flicker characteristics of a subset of 14 LED A lamps
- ☀ [Retail Lamps Study 3.2](#) focuses on lumen depreciation and color shift in a subset of 15 LED A lamps. The lamps were monitored in an automated long-term test apparatus for more than 7,500 hours.

For more details on these instructive studies as well as others on LED retail lamps, see the full reports, which are available on the [DOE website](#)

50. DOE Releases Report on SSL Adoption in Museums - The U.S. DOE has released a new GATEWAY report that summarizes the results of a survey regarding conversions to solid-state lighting in museums. Although the energy savings from LED conversion are well known, lower damage potential to artwork and sensitive artifacts and increased possibility for controls are other incentives for museum adoption. In general, white LEDs pose no special issues in color rendering or increased damage potential for works of art, compared to an equivalent CCT halogen or fluorescent source.

<http://energy.gov/eere/ssl/gateway-demonstration-special-reports>

- 51. Daintree Networks Takes Building Energy Management into the Cloud -** Daintree's Building Energy Management as a Service (BEMaaS™) approach makes its ControlScope™ software available as a cloud-based building automation technology to enable comprehensive energy management that far surpasses simple lighting control. This is a true end-to-end energy management service offering that spans various building applications and control down to individual devices including lighting, thermostat, plug load, fans and more. <http://www.daintree.net/wp-content/uploads/2014/10/BEMaaS-print-102014.pdf>
- 52. EPA 2015 Verification Testing for Lamps -** In the interest of maintaining the integrity of the LED lamp market, EPA has decided to retain the full 6,000-hour testing of LED lamps to evaluate lumen and color maintenance as well as rated life. EPA will re-evaluate the guidance after assessing the results from 2015 verification testing. [Third-Party Certification Directives web page](#)
- 53. LED Lighting Market in North America 2015-2019 -** The analysts forecast the LED Lighting market in North America will grow at a CAGR of 21.12 percent over the period 2014-2019. The LED Lighting market in North America can be divided into three application segments including: Automotive Lighting, Backlighting, and General Lighting. The report has been prepared based on an in-depth market analysis with inputs from industry experts. It covers the market landscape and its growth prospects in the coming years. The report also includes a discussion on the key vendors operating in this market. http://www.researchandmarkets.com/publication/m1719cp/led_lighting_market_in_north
- 54. Automotive LED Lighting Market in Americas to Grow at a 25.26% CAGR by 2019 -** The key trend upcoming in this market is the increased use of LED headlamps. LED headlamps increase occupant safety as they are powerful and provide constant high-light quality, which allows for illumination at longer distances. These headlamps also reduce energy consumption and improve the esthetic appeal of vehicles. A lighting system provides vehicle safety and road illumination. It can also display information about the vehicle's presence, position, speed, size, and direction to oncoming vehicles. Order a copy of this report at (Prices start at US \$ 2500 for a single user PDF): <http://www.reportsnreports.com/Purchase.aspx?name=322408>
- 55. The Significance of the LED Lighting Industry by SSLDesign/LIGHTimes Editorial Team -** A big motivation (or frustration) factor in most people's lives is significance. When we feel we we're making an impact, not only do we feel better about ourselves, we feel better about pretty much everyone. When we don't think we're making a difference, things will typically start to fall off the rails. Apathy being the mild symptom, and tragedy being the extreme. As we kick off 2015, we'd like to stake out our position concerning LED technology and LED lighting: The industry has huge significance, and anyone supplying, applying or producing should be proud of their contribution. All this is coming as a parallel of two elements: 1) The capabilities of LEDs to allow us to unlock the "secrets" of light; and 2) The coming *real* smart lighting revolution. <http://sslighting.net/documents/view/news.php?id=124618#editorial>

56. US Government Accelerates LED Street Light Push in DOE Program -

President Obama announced an acceleration in the “Presidential Challenge for Outdoor Lighting” program that is being administered by the US DOE under the Better Buildings program. Obama had earlier called for 500,000 poles to be retrofitted with energy-efficient lighting, primarily LED-based fixtures, by 2016. On Friday, 1/23, at the US Conference of Mayors meeting, the President upped the goal to 1.5 million LED street light poles by May 2016. The DOE will assist the participants in selecting and in finding funding for LED street light retrofit projects. <http://www.ledsmagazine.com>

57. The Challenges of Specifying LEDs - The many benefits associated with light-emitting diode (LED) illumination explain why it has “accelerated into the market place over the last decade at an unprecedented rate for a new light source,” said OSRAM SYLVANIA Director of Government & Industry Relations Mark Lien, the lead-off speaker for a panel of experts that the National Lighting Bureau assembled to discuss the challenges of specifying LEDs. The key challenge associated with LED lighting, panelists said, is rapid obsolescence. <http://www.nlb.org/index.cfm?cdid=11099&pid=10213>

58. Strategies Unlimited Forecasts COB LED Market to Grow to \$4.4B in 2020 -

It is forecasted that the overall market for these COBs (Chips on Board) will grow significantly to \$4.4 billion in 2020 from \$1.5 billion in 2014, and the market will experience a very respectable 40% growth from 2014 to 2015. Long term growth is mainly due to the increased penetration of COBs into directional and high lumen applications. The World Market for COB LEDs in General Lighting offers unprecedented insight into the total lighting market through 2020 by covering all applications of luminaires and lamps, including troffers, downlights, spotlights, street lights, high bay, MR-16, reflectors, and other replacement lamps.
<http://www.ledsmagazine.com/ugc/2015/01/23/strategies-unlimited-forecasts-cob-led-market-to-grow-to-4-4b-in-2020.html>

59. The Global Smart Lighting Market Accounted for Revenue of ≈ \$22.36

Billion in 2014 - The report presents a detailed market analysis of Smart lighting by incorporating complete pricing and cost analysis of components & products, product benchmarking, Porter's analysis and PEST (Political, Economic, Social & Technological factor) analysis of the market. The report deals with major lighting products and control systems, market drivers, challenges and opportunities with respect to the global Smart lighting market. The lighting products include new innovative light sources such as LED, Light Fixtures, CFL, Fluorescent lamps and HID lamps that help conserve energy along with control systems that include various sensors, dimmers and accessories to serve the purpose of optimization. The report provides a detailed geographical analysis of the current situation of the industry and estimates the expected growth over the coming years. For more information:
http://www.researchandmarkets.com/publication/mnj627p/global_smart_light_fixture_led

60. Five Things That Could Replace the Light Switch - LEDs may have the near future sewn up as far as light sources go, but the crystal ball is altogether murkier when it comes to the question of controls. How will they look in the future? There are several technologies seeking to usurp the humble wall rocker:

- ☀ **Gestures** - The proposition of gesture-controlled lighting is a simple one: why walk up to a switch when you could simply wave at it from where you are?
- ☀ **Voice control** - And Steve said, ‘let there be light’, and there was light.
- ☀ **Presence detection** - In the commercial sector, presence detection – or more accurately motion detection – is as old as the hills.
- ☀ **Apps** – Lets you take control of your lighting with a downloadable smartphone app. The idea is you can turn your lights on and off, dim them up or down, or adjust their color from the comfort of your sofa either via Bluetooth or Wi-Fi.
- ☀ **Your smart home hub** - Smart homes are smartest when all the systems are able to talk to each other. One simple way to do that is to have a device that’s in charge like a smart thermostat.

<http://www.luxreview.com/news/622/five-things-that-could-replace-the-light-switch>

61. DOE Publishes Long-Term Testing Investigation of Retail Lamps -

CALiPER Retail Lamps Study 3.2 focuses on lumen depreciation and color shift in a subset of 15 LED A lamps from CALiPER Retail Lamps Study 3. The lamps were monitored in an automated long-term test apparatus for more than 7,500 hours. On average, the lumen maintenance of the LED lamps was better than either of the benchmark lamps (CFL and halogen), but there was considerable variation from lamp model to lamp model. A key takeaway is that the long-term performance of LED lamps can vary greatly from model to model. <http://energy.gov/eere/ssl/downloads/retail-lamps-study-32-lumen-and-chromaticity-maintenance-led-lamps-operated>

62. DOE Publishes CALiPER Report on Lumen and Chromaticity Maintenance of LED PAR38 Lamps -

The U.S. DOE's CALiPER program has released Report 20.4, which is part of a [series of investigations on LED PAR38 lamps](#). Report 20.4 focuses on lumen maintenance, chromaticity maintenance, and catastrophic failure in 32 of the Series 20 LED PAR38 lamps and eight benchmark lamps, which were monitored for nearly 14,000 hours at ambient temperatures between 44°C and 45°C. The report is best used to understand the variation in LED product performance, compare the robustness of LED lamps and benchmark conventional lamps, and understand the characteristics of lumen and chromaticity change. <http://energy.gov/eere/ssl/downloads/report-204-lumen-and-chromaticity-maintenance-led-par38-lamps>

63. Your Smart Home Hub - Smart homes are smartest when all the systems are able to talk to each other. One simple way to do that is to have a device that’s in charge like a smart thermostat. <http://www.luxreview.com/news/622/five-things-that-could-replace-the-light-switch>

64. Internet of Things Expected to Quadruple in Size by 2020 - Organizations are seeing measurable benefits from Internet of Things (IoT) projects, and the number of overall IoT connections will more than quadruple between 2014 and 2020, according to a Verizon Enterprise Solutions report released Feb. 23. The report delves into adoption trends and predictions for the future of the IoT market (Verizon defines IoT as to machine-to-machine technology enabled by secure network connectivity and cloud infrastructure, to reliably transform data into useful information for people, businesses and institutions.)
<http://www.govtech.com/internet/Internet-of-Things-Expected-to-Quadruple-in-Size-by-2020.html>

65. Philips Gives Workers Smartphone Control of Office Lighting with Connected Lighting System - A 45+ worker tends to need almost double the light needed by a 20 year old for everyday tasks. New technology from Philips allows office workers to personalize their lighting. The Philips system allows office workers to control the lighting in open plan offices as well as temperature in meeting rooms, to suit their individual preferences. Their smartphones will detect their location from overhead lighting fixtures via an app. The system uses Power-over-Ethernet (PoE) to connect office lighting fixtures to a building's IT network. The lighting system acts as an information pathway, enabling workers to control and access other building services via their smartphones, allowing them to enjoy greater visual comfort and productivity. <http://www.newscenter.philips.com>

66. Acuity to be a Sensity NetSense Partner - Acuity Brands and Sensity plan to create a joint solution that further transforms energy-efficient LED lighting into a smart, connected platform for the Industrial Internet of Things (IIoT). As a Sensity NetSense Partner, Acuity Brands further expands its industry-leading smart outdoor lighting solutions capabilities by adding the ability to capture and transmit data near real-time, providing actionable insight and enabling a broad array of applications and services. The smart lighting solutions targeted to cities, commercial and retail buildings, airports and universities will focus on improving energy conservation, public services, safety and security, and a wide variety of other applications. <http://www.sensity.com/acuity-sensitypartnership>

67. The Industrial Internet: Changing the Competitive Landscape - How big is the economic power of the Industrial Internet? Consider one analysis that places a conservative estimate of worldwide spending at \$500 billion by 2020. The Industrial Internet—the combination of Big Data analytics with the Internet of Things is producing huge opportunities for companies in all industries. According to new research from GE and Accenture, executives across the Industrial and Healthcare sectors see the enormous opportunities of the Industrial Internet and in many cases are deploying the first generation of solutions. The vast majority believe that Big Data analytics has the power to dramatically alter the competitive landscape of industries within just the next year and are investing accordingly. Download the whitepaper: <https://www.gesoftware.com/sites/default/files/industrial-internet-insights-report.pdf>



68. LED Takes on Fluorescent in Troffers by Craig DiLouie - According to the U.S. DOE, four out of five lamps in service in commercial buildings 2010 were fluorescent, with a majority used in troffer (cross between “trough” and “coffer”) luminaires. Available in standard 1'x4', 2'x4' and 2'x2' sizes, these luminaires are popular in applications featuring dropped acoustical-tile ceilings. In recent years, LED technology has challenged this venerable workhorse with energy-efficient and long-life alternatives. DOE estimates the installed base of LED troffers increased from an estimated 40,000 units in 2010 to nearly 700,000 units in 2012. Manufacturers report demand has escalated over the past two years, estimating that 15+ percent of new troffer luminaires sold today employ LEDs as the light source.

<http://www.lightnowblog.com/2015/02/led-takes-on-fluorescent-in-troffers/>

69. Europe's Plan to Make the 'Humble' Lamppost a Bit Less Humble - Outdoor lighting giants Philips and Schréder are joining a group of companies and cities from across Europe to kickstart the market for 'smart' streetlights. Smart lighting technology – with sensing and communication capabilities built in like Wi-Fi, air quality monitoring, parking, traffic sensing, etc. – is still young and not widely understood. So around 25 organizations representing potential buyers, sellers and makers of the technology have committed to playing their part in establishing the market. The aim is to get 10 million smart lights on to Europe's streets by 2017. The 'market making' project, nicknamed [The Humble Lamppost](#), is part of the European Innovation Partnership on smart cities, set up by the European Commission. <http://www.luxreview.com>

70. China LED Chip Production Value Expected to Surpass Taiwan's in 2015-2016 - While some China-based LED chip makers withdrew from the market, larger ones including San'an Optoelectronics, HC SemiTek, Suzhou Nanojoin Photonics and Aucksun used government subsidies to expand production capacities by adding 155-170 MOCVD sets in 2014. In 2015, more than 250 MOCVD sets, mostly for making 4-inch LED epitaxial wafers, are expected to be added, the sources noted. The total production value rising from 52% in 2013 to 60% in 2014 (US\$1.95-\$2.24 billion); and is expected to grow by about 35% in 2015. <http://www.digitimes.com/pda/a20150115PD216.html>

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