

EnergyWatch



July 2015

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

It's too late to sit around and wait for somebody to do something someday. Someday is now and that somebody is YOU. Northland College Principal John Tapene

Education is NOT the learning of facts but the training of the mind to THINK. Albert Einstein

Something to Think About...

WHO SAID LED LIGHTING IS DISRUPTIVE INNOVATION? BY BILL ATTARDI

I don't know....it wasn't me. Maybe it was Chicken Little Chris Brown. It certainly supports his ILLUMIGEDDON theory. Yea, let's say it was him.

Well, I decided to go to Harvard to find out. A Harvard Business School professor Clay Christensen, The Wrong Kind of Innovation, coined the term "disruptive innovation". In fact it's helpful to understand Christensen's theory of the three types of innovation:

1. The first are "disruptive / empowering" innovations. These transform complicated, costly products that previously had been available only to a few people, into simpler, cheaper products available to many. Disruptive innovations entail a discontinuous shift from "how things worked" in the past to how they work today and in the future. The Ford Model T was an empowering innovation, as was the Sony transistor radio. Empowering innovations create jobs for people who build, distribute, sell and service these products.
2. The second type are "sustaining" innovations. These replace old products with new. The Toyota Prius hybrid is marvelous--yet every time a customer buys a Prius, a Camry is not sold. Sustaining innovations replace yesterday's products with today's products. They keep our economy vibrant--and, in dollars, they account for the most innovation. But they have a zero-sum effect on jobs and capital.
3. The third type are "efficiency" innovations. These reduce the cost of making and distributing existing products and services--like Toyota's just-in-time manufacturing in car making and Geico in online insurance underwriting. Efficiency innovations almost always reduce the net number of jobs in an industry, allow the same amount of work (or more) to get done using fewer people.

I learned that industries typically transition through these types of innovations. Let me explain...The early IBM mainframe computers were so expensive that only big companies could own them. Then came the PCs, a disruptive / empowering innovation that allowed many more people to own computers and realize Bill Gates' vision that one day every home and every office station will have a PC. Then companies like Hewlett-Packard



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hired and deployed thousands of workers to make better computers — sustaining innovations. Finally, the industry began to outsource its operations, becoming much more capital efficient. This reduced net employment within the industry, but freed capital that had been used in the supply chain — efficiency innovations.

Let's examine our beloved lighting industry. I contend that the only disruptive innovation was the incandescent light bulb thanks to Thomas Alva Edison, from New Jersey by the way. It was disruptive because it was an innovation that helped create a new market, accessible to many and disrupting the then existing kerosene lighting market. New entrants joined GE, like Westinghouse, Sylvania, Philips, and others to build a dynamic industry, thanks to disruptive innovation. Afterwards, what has happened in the lighting industry, in its long history, it can be argued, is continuous sustaining innovation. Along came the evolution to fluorescents, HID, halogen, PL, CFL, electronic ballast, dimming, controls, etc... creating better value to existing products allowing the incumbent firms within to compete against each other's sustaining improvements. Efficiency innovations make products cheaper and businesses more efficient and has occurred throughout our mature industry in the manufacturing process, the marketing and sales activities, the distribution channels, logistics, e-commerce, etc. Note: efficiency innovations pay off rather quickly. Disruptive innovations need resources and could take many years to pay off.

In analyzing all of this, I find it particularly relevant that it is very difficult for a new market entrant to gain traction with an incremental / sustaining innovation, since the market incumbents can easily incorporate the new technologies while maintaining their other advantages like brand loyalty, cost efficiency, supply chain access, distribution network, customer contact and so on.

Now I ask you: is LED disruptive innovation or what?

As long as lighting is just lighting, I don't think it is. I ask again, is the phone still only a phone? We have lived through the many lighting product evolutions before and the same players still dominate. LED is just another incremental product improvement...sustaining innovation, right? It may be a revolutionary improvement since it has the potential to replace every lighting system commercially available. But, it's still affecting the lighting business only, right? Maybe not...

Let's agree that LED / OLED / ETC technologies are continuous sustaining innovations improving quality of light, energy efficiency, and long-life but Smart Lighting will not only allow consumers to manipulate the timing, intensity, and quality of light but will internally interact and track and react and adapt to the users' living and working patterns. It's not just about illumination only. Well then, my good friend and adversary Chris Brown is right.....

Smart Lighting is disruptive, very disruptive innovation: it has its own apps, sophisticated control capabilities, embedded devices, IoT / IoE / PoE applications, energy monitoring, interactive communications, mobile wireless communications, Wi-Fi, Li-Fi, automatic dimming, network technologies, plug-and-play interaction, facial recognition, integrated security, connected lamps, programmed to research the space, the ability to transmit sensitive information, wireless protocol implementations, web services, mobile applications, backend infrastructure and stuff we haven't heard of yet.. One more thing: lighting may wind up being the core connector to everything (IoE). Be careful, new entrants can thrive in such an environment.

So what am I saying? Simply, we are not in the lighting business any longer. We are in the Smart Lighting business. The LED technology and what is to follow is still sustaining innovation but let me repeat, Smart Lighting is not just about illumination any more. That's why it may be disruptive innovation, the first time since the Edison light bulb. Let's hope so, as it will usher in an era of prosperity and innovation the world has never seen.



LED EnergyWatch...

1. ***LED Lighting Will Go Mainstream in 2015 and be a Fully Established Global Market by 2019*** - By late 2014, LED lighting was closing in on 40% penetration of the global lighting market. It was the second consecutive boom year, confirming the breakthrough in the key regions of Europe, North America, and China. Driven by enhanced controllability and energy efficiency, the revolution will continue and momentum will build throughout 2015. This transformational change brings massive opportunities across value chains, but also presents huge strategic challenges to incumbent participants in terms of pace of technology change and business model. The growth will continue to 2020 and beyond, bringing a future that is totally different than the familiar traditional lighting markets. http://www.researchandmarkets.com/publication/mnxksiy/world_led_lighting_markets_2015
2. ***Cree Recalls LED T8 Lamps Due to Burn Hazard*** - About 700,000 in the U.S. (an additional 11,500 were sold in Canada). This recall involves Cree LED T8 lamps used indoors to replace traditional two pin T8 fluorescent tubes. The white lamps have a cylindrical shape and measure 48 inches long. The affected units are marked as “BT848 Series Lamp” with the product part number on the lamp itself or printed on a white label affixed to the lamp. A four digit date code is printed on the lamp under a statement that reads “Compatible with Instant Start, Rapid Start and Dimmable Electronic Ballasts.” Product numbers and UPC codes printed on the product packaging are listed here: <http://www.cpsc.gov/en/Recalls/2015/Cree-Recalls-LED-Lamps/#remedy>
3. ***Smart Lighting Research Suggests the Way Forward for Lighting as IoT Backbone*** - Smart lighting’s rising importance was highly visible at last month’s Lightfair International show, but a conversation with one of the leaders of research into the future of smart lighting suggests what we’ve seen so far is just a hint of what’s to come. Understanding how we get from here to there is the work of Robert Karlicek, director of the Smart Lighting Engineering Research Center, based at Rensselaer Polytechnic Institute, Troy, N.Y., and his organization. <http://m.electricalmarketing.com/green-business/smart-lighting-research-suggests-way-forward-lighting-iot-backbone>
4. ***LRC Study Shows Uniform Lighting in Parking Lots Provides Better Sense of Security*** - A newly published study from the Lighting Research Center (LRC) at Rensselaer Polytechnic Institute shows that improving the uniformity of lighting in parking lots can increase the sense of safety and security, as well as provide up to an additional 75% energy savings by lowering total light levels. The study describes a field demonstration, human factors study, and systems analysis that tested the relationship between illuminance, uniformity, and user acceptance in parking lots, and calculated the advantage that LED luminaires offer at producing more uniform beam patterns compared with HID luminaires. <http://www.lrc.rpi.edu/programs/solidstate/parkingLotUniformity.asp>
5. ***Three New SBIR Grants Awarded for SSL Technology*** - The U.S. Department of Energy (DOE) Office of Science has awarded three Small Business Innovation Research (SBIR) grants targeting key advances in solid-state lighting (SSL) technology:
 - 1) VoltServer, Inc. (Phase II): Low-Cost, High-Efficiency Integration of SSL and Building Controls using a PET Power Distribution System
 - 2) MoJo Labs Inc. (Phase II): Daylighting Digital Dimmer
 - 3) OLEDWorks LLC (Phase I): Pedestrian-Friendly OLED Luminaire

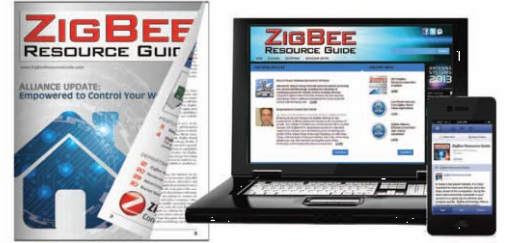
To learn more about this program, visit <http://science.energy.gov/sbir/>



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6. ***The 2015 ZigBee Resource Guide*** - Endorsed by the ZigBee Alliance, the ZigBee Resource Guide provides information about ZigBee standards and the organizations who are taking an active role in the low-power wireless control industry. The guide is a magazine-style solutions guide, focusing solely on products, applications and solutions for end-users and integrators of ZigBee. The objective is to introduce potential customers to the benefits of ZigBee, and to guide them to leading suppliers of ZigBee products. This resource guide provides a unique opportunity for these buyers and specifiers to obtain a comprehensive view of products and services available, combined with the ability to readily interact with the vendor participants.



http://www.zigbeeresourceguide.com/main/wp-content/uploads/2015/04/ZRG_Mediakit_2015.pdf

7. ***9 Cool Things Lights Can Do Thanks to the IoT*** - The market for the internet of things (IoT), or internet-connected objects, is exploding, and it's going to change the lighting industry, our homes and our cities, in very big ways. Some of them are undeniably gimmicky, while others do really useful things in the background. Here are nine really cool things lighting can do thanks to IoT:

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|------------------------------|--|
| 1) Monitor urban air quality | 6) Make TV immersive |
| 2) Keep an eye on the masses | 7) Team up with your smoke alarm |
| 3) Improve parking | 8) Power services based on aggregated data |
| 4) Direct traffic | 9) Provide a basis for others to build |
| 5) Demand attention | |

<http://www.luxreview.com>

8. ***Bulb Price Wars Drives Cree LED Business Restructure*** - The U.S. LED manufacturer announced Wednesday that "the company has decided to restructure the LED Products business to reduce excess capacity and overhead to improve the cost structure moving forward." The decision to slim down its LED business was attributed to higher than forecasted LED average selling price erosions, under-utilization of Cree's LED factory, and its growing reserves that reflect aggressive pricing environment. Cree estimated the restructure would cost approximately \$85 million. The steep price cuts are the result of traditional lighting manufacturers growing reliance on Asian OEMs. This places Cree at a disadvantage, since its manufacturing base is in U.S., where production costs are much higher. The company is also losing ground in Home Depot retail channels, where it previously had an advantageous position.

http://www.ledinside.com/news/2015/6/bulb_price_wars_drives_cree_led_business_restructure

9. ***Can Amazon 'Uber' Distributors?*** - Whether or not Amazon succeeds with its plan to bring an Uber-like experience to package delivery – wherein customers hire a private driver to bring them whatever knickknacks they need right away – the company continues to disrupt the business status quo. According to numerous sources, the company is considering a crowdsourced delivery system where people will sign up to make deliveries the same way they sign up to shuttle passengers through Uber or Lyft. Customers can use an app to have a driver bring them a package from an Amazon distribution center to their house the same day. Although it is designed for the business-to-consumer market, the model could potentially work for the company's newly formed Amazon Business, which recently replaced the now-defunct AmazonSupply. And that means it could threaten cargo companies and distributors the same way Uber and Lyft have taken market share from taxicab operators. <http://www.mdm.com/>



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10. Mount Rushmore Introduces Unique Lighting System - The more than two million visitors who travel to Mount Rushmore National Memorial each year will now enjoy an enhanced night time viewing experience, thanks to an innovative new lighting system with an LED light source that was recently installed at the memorial. The new system, custom designed and manufactured by Musco, will result in substantially less light pollution, while dramatically improving the lighting at the national memorial and saving energy.



<http://www.eturbonews.com/60296/mount-rushmore-introduces-unique-lighting-system>

11. DOE Publishes Updated SSL R&D Plan - Widely referenced by industry and government both here and abroad, the R&D Plan reflects the consensus view of the community on key barriers, technology challenges to address, and where R&D efforts are required over the next three to five years. It provides analysis and direction for ongoing R&D activities to advance SSL technology and increase energy savings, reviewing SSL technology status and trends for both LEDs and OLEDs and offering an overview of the current DOE SSL R&D project portfolio. Among the more noteworthy changes were deeper dives into source efficacy, light utilization, and improved performance and design, as well as the addition of sections on cost of ownership, sustainability, and new functionality. To download a PDF of the 2015 SSL R&D Plan, go to www.ssl.energy.gov/techroadmaps.html

12. Osram Opto: Future Is Bright for LED Components in Wearable Application - The emerging “Quantified Self” trend involves people monitoring, managing and tracking their health and wellbeing through digitalized biomedical information. Equipped with optical sensors, wearable devices such as smart watches and smartbands help consumers collect and measure different biological indicators and stats about themselves. Unlike the fiercely contested white LED market, the newly developing wearable device market is an untapped blue ocean market that presents incredible opportunities for the LED industry. <http://www.ledinside.com/>

13. Cree Joins Soccer Star Abby Wambach to Light a Better Way - From stadiums to homes, LED is transforming the way the world sees light. Cree has teamed with Abby Wambach, two-time Olympic gold medalist and highest all-time international goal scorer, to emphasize the importance of determination, innovation and performance – on and off the field – beginning with this month's international soccer championship. Through this initiative, Cree and Abby will recognize and celebrate those who never stop challenging the status quo and accept nothing but victory. "Cree's mission complements my own commitment to achieve team greatness and accomplish together what others may have thought impossible," said Wambach. <https://www.youtube.com/watch?t=58&v=LcD8nKXB3vc>

14. Lutron's Caseta Lighting Controls Are Now (Mostly) Compatible with Apple's HomeKit - Apple was quick to bat down rumors that its HomeKit connected-home technology wouldn't be ready until late this summer, and lo and behold, Lutron has announced that a HomeKit-compatible version of its Caseta lighting system is available for purchase at Apple Stores today. HomeKit-compatible Caseta kits enable you to use Apple's Siri voice-recognition technology on an iPhone or iPad to control Lutron's Caseta in-wall dimmers and plug-in lamp modules, as well as its Serena motorized window shades. Tell Siri “turn the lights off,” and all the lights controlled by Caseta devices will automatically turn off. You can give Siri similar commands to close its Serena roll-up and honeycomb window shades. <http://www.macworld.com/article/2929733/lutrons-caseta-lighting-controls-are-now-mostly-compatible-with-apples-homekit.html>



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15. LED Signage Industry: Adapt or Die - A few years ago it became clear that the LED signage industry needed a change. Fundamental shifts in LED technology, plus continual breakthroughs in software and hardware, and new innovations in competitive digital screen technologies, will force the LED sign manufacturer to adapt or die. Hardware is getting lighter, smaller, and faster. Microprocessors and microcontrollers get more effective every day. Advances in software are reinventing the way we see the world at an accelerated pace. Just think of all that can be achieved with something as small as a cellphone -or an Apple watch.

http://www.ledinside.com/knowledge/2015/6/led_signage_industry_adapt_or_die

16. The 10 Biggest Trends Transforming Workplace Lighting -

- | | |
|-------------------------------------|----------------------------------|
| 1) Upgrades that pay for themselves | 6) Power to the people |
| 2) Controls | 7) Wellbeing and productivity |
| 3) From T5 to LED | 8) Monitoring |
| 4) The end of the louvre? | 9) Beyond light |
| 5) Adapting to new working patterns | 10) The internet of things (IoT) |

<http://www.luxreview.com/article/2015/06/the-10-big-trends-transforming-workplace-lighting>

17. 2015 Update of World LED Lighting Markets - The Frost & Sullivan report shows LED lighting will go mainstream in 2015 and be a fully established global market by 2019. By late 2014, LED lighting was closing in on 40% penetration of the global lighting market. It was the second consecutive boom year, confirming the breakthrough in the key regions of Europe, North America, and China. Driven by enhanced controllability and energy efficiency, the revolution will continue and momentum will build throughout 2015. This transformational change brings massive opportunities across value chains, but also presents huge strategic challenges to incumbent participants in terms of pace of technology change and business model. The growth will continue to 2020 and beyond, bringing a future that is totally different than the familiar traditional lighting markets. <http://www.researchandmarkets.com/reports/3257605/world-led-lighting-markets-2015-update>

18. LED Lighting: Market Shares, Strategies, and Forecasts, Worldwide, 2014 to 2020 - The Winter Green Research report states that the global lighting market will achieve tremendous growth, from US\$4.8 billion in 2012 to US\$42 billion by 2019, registering growth at a CAGR of 45% over the period. The 403 pages' report includes 183 tables and figures to illustrate market figures and statistics. The report states that the next generation of lighting systems will observe a total replacement of incandescent filament bulbs with the new generation LED lighting systems that seek to provide more energy efficiency, low cost of operation and a longer lifetime. To get sample copy of this report visit: <http://www.researchmoz.us/enquiry.php?type=sample&repid=239406>

19. Eaton's Lighting Products Featured on Web Series Hosted by Ty Pennington - Power management company Eaton is featured on the new online web series "First to the Future Home," showcasing what it takes to make a home energy efficient, weather and storm resistant, healthy and intelligent. Host of the NGHTV web series, Ty Pennington, reveals the "First to the Future Home" this spring. More than 200 of Eaton's Halo® light-emitting diodes (LED) lighting solutions are utilized throughout the interior and exterior coves of the home. To watch the web series featuring Eaton's Halo lighting solutions, visit http://www.nghtv.com/FTF_Series.aspx?id=1096



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- 20. Webinar—High-Efficiency Parking Lighting Strategies for Federal Agencies** - On July 16, there will be a 60-minute live webinar to provide useful information and an overview of the Lighting Energy Efficiency in Parking (LEEP) Campaign, where federal facilities managers can go to find the technical resources they need, including Federal Energy Management Program (FEMP) designation for site lighting, specifications, products lists, utility incentives, and design guides for a successful project. Michael Myer of Pacific Northwest National Laboratory will present the webcast. The webinar will begin promptly at 1:00 p.m. Eastern. For more information or to register, visit the <https://www4.eere.energy.gov/femp/training/training/high-efficiency-parking-lighting-strategies-federal-agencies>
- 21. ILLUMIGEDDON AND THE NEW AGE OF LIGHTING DISTRIBUTION BY CHRIS BROWN** - Several years ago, I started a project to 'connect the dots' of the lighting industry... all the new technology, new manufacturers, new business models, new competition and the fact that solid-state lighting (SSL) is a classic disruptive technology, and also a destructive technology to our traditional MRO lamp replacement business. In addition, the advent of smart lighting is bringing new players from the technology industry into our once sleepy, stodgy lighting industry. Connecting the dots led me to the conclusion that we are experiencing the end of the traditional lighting industry as we had known it. Thus the concept of 'Illumigeddon' was born and has been debated for months with Bill Attardi in his EnergyNewsWatch.com blog. In no particular order, I want to start more conversation on what I think are the most important aspects of the new age of SSL, particularly as it impacts lighting distribution. <http://www.tedmag.com>
- 22. Smart Streetlights Keep the Big Ships Moving in Hamburg** - Germany's Port of Hamburg has installed sensors on light poles that keep an eye on the state of roads and bridges in the port. The sensors know exactly when operators have raised the port's massive lift bridge to allow ships to pass underneath, and thus how to reroute road traffic which cannot cross the bridge. The lighting infrastructure, provided by Philips, also detects any road incidents such as accidents or traffic jams, and alerts port management immediately. And it includes environmental sensors for air quality, as well as motions sensors that turn lights on and off as needed for pedestrians and cyclists in a 'follow me' lighting scheme. The new 'smartROAD' system is a key part of the port's effort to handle more than the 10,000 ships a year it currently loads and unloads and is one of the first deployments of a broader 'internet of everything' smart city collaboration between the city of Hamburg and Cisco. <http://www.luxreview.com/article/2015/06/intelligent-streetlights-keep-the-big-ships-moving-in-and-out-of-hamburg>
- 23. Italy's Largest LED Road Lighting Upgrade** - More than 140,000 LED luminaires have been installed around Milan in what is said to be the largest LED road lighting upgrade in Italy. Most of the fittings are Italo lanterns (pictured). They've been installed by AEC Illuminazione, which won the tender from regional energy supplier A2A. The LEDs concentrate the light emission towards streets and pavements without any upward emission, in accordance with regulations on light pollution. The luminaires are equipped with Osram drivers. Osram also recently installed [7,000 LEDs in the Sistine Chapel](#). The Italian city of [Turin will also be installing 45,000 luminaires from AEC](#). The city hopes that the project will help in its bid to become one of the next 'smart cities' in the European Commission's Horizon 2020 programme. <http://www.luxreview.com/article/2015/06/behold-italy-s-largest-led-road-lighting-upgrade->



LED Technology Watch...



24. Soraa Directional Wireless LED Lamps - The PAR30L LED lamp offers wireless control and provides users a variety of customizable remote functions, including dimming, control of lamps in user-defined groups, and user-designed preset lighting scenes. Due to the directional nature of the lamps, lighting layers can be easily controlled at the individual and local level. In combination with a mobile application that runs on iOS and Android platforms, the products can form a mesh network and connect in almost unlimited numbers to a smart phone. Via Bluetooth Smart, the lamps can interact directly with smartphones, without the need of a bridge or router setup. Available in 2,700K and 3,000K with a CRI of 95.

<http://www.soraa.com>

25. Amerlux® Introduces Curvano Linear LED Luminaires for Architectural Spaces - Curvano is a direct ambient lighting fixture that provides optimal performance in a slim, soft edged profile for all design applications. The LED luminaire is available in 5-watt or 10-watt per foot models that deliver up to 100 lumens per watt in standard individual units of 4-foot or 8-foot lengths, or in linear run lengths. With 0-10V dimming as a standard, Curvano is also offered with DALI and Lutron Hi-lume® and EcoSystem® systems. In addition, the fixture is equipped with a standard programmable driver that can be modified with customized wattages to meet the most demanding energy code specifications.

<http://www.amerlux.com/products/interior/linear-systems>



26. GE Bright Stik LED Review - THE GOOD: GE's innovative-looking Bright Stik LED casts a warm, omnidirectional glow that works well for basic household lighting. The five-year warranty is one of the best you'll find at this price point. **THE BAD:** The Bright Stik LED isn't quite as bright or as efficient as its main competitor, the \$5 Philips 60W Replacement LED. **THE BOTTOM LINE:** At \$10 for a 3-pack, the Bright Stik LED is a compelling value pick in the lighting aisle.

<http://www.cnet.com/products/ge-bright-stik-led-3-pack/>



27. Acuity Announces Larger LED Sources in New Autobahn Roadway Luminaire - The new design eschews the many smaller LEDs and total internal reflection (TIR) optics that are typically used in outdoor lighting and instead employs larger LED sources and glass optics. The new Acuity design can deliver 7000–17,400 lm and apparently uses

only three larger LED sources to deliver the lumen package. The lower weight and EPA ensure that the ATBM LED luminaires can be retrofit onto existing poles and arms. At 25°C, the L70 and driver life exceed 100,000 hours. American Electric Lighting (AEL) produces the ATBM LED luminaires that offers 60 percent greater energy efficiency and require 50 percent less maintenance compared to similar HID luminaires. <http://www.acuitybrands.com/products/detail/344812/american-electric-lighting/autobahn-atbm/led-roadway-luminaire/>



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28. ConTech Introduces Products Equipped with Megaman Lamps - ConTech Lighting has introduced track fixtures, recessed housings and cylinders equipped with Megaman lamps, the latest addition to its' LED product family. Among the Megaman lamps being fitted for this line of products are the MR16, Par16 and Par38 lamps. ConTech Lighting announced a partnership with MEGAMAN in January, to be the exclusive distributor of MEGAMAN branded LED lamp and lighting solutions throughout North America starting in January of 2015. As MEGAMAN's official distribution partner, ConTech Lighting will utilize its established distribution network and market expertise to increase sales for the full range of MEGAMAN branded energy efficient LED technology throughout the USA and Canada. www.contechlighting.com

29. GREEN CREATIVE Launches PAR REFINE Series High CRI LED Lamps - The new PAR REFINE Series includes PAR38, PAR30 long and short neck and PAR20 lamp types in spot, narrow flood and flood beam angles. All PAR REFINE series lamps feature a sleek body and the patent pending three-part REFINE optic. This innovative combination of a reflector, focus lens and shaping lens gives the lamp a traditional halogen look while providing excellent light output with a high candela to lumen ratio. Each lamp has typical CRI 90, R9 50 and R13 90 values that provide crisp and vibrant colors across the whole spectrum. All PAR REFINE Series lamps are fully dimmable, suitable for use in totally enclosed fixtures, turn on instantly and last 40,000 hours. The lamps are available in 2700K, 3000K and 4000K in 15°, 25° and 40° beam angles and in black and white finishes. Detailed information and data sheets are available at: <http://gc-lighting.com/categories/directional/> Watch the video: https://www.youtube.com/watch?v=A_GutvbbUG0



30. Samsung Adds COB LEDs with Smaller LES Options and Vivid Color - Samsung has announced a number of new chip-on-board (COB) packaged LEDs with the goals of providing solid-state lighting (SSL) developers more options in terms of optical control and color quality. LEDs with a smaller light emitting surface (LES) enable tighter beams while 95-CRI options and LEDs designed for optimally presenting saturated colors will target applications such as retail. The Samsung announcement was long on boasts and short on details as to exactly how the new COB LEDs will deliver on the touted features. <http://www.ledsmagazine.com>

31. New Smart Lightbulb Emulates the Sun in Your Home - A new smart LED lightbulb aims to improve your health, wellness and sleep patterns by providing you with light that is more akin to that of the sun. It slowly shifts from blue to red in the day, allowing your body's circadian rhythm to operate normally. The Silk bulb has been created by Utah-based Saffron and is currently seeking \$100,000 of crowdfunding on Kickstarter. The campaign explains Silk will automatically adjust the temperature of the light that it emits throughout the day, akin to how the warmth of sunlight changes from dawn to dusk. This means that your circadian rhythm will be more regular and your biological clock calibrated correctly against the sun. <http://www.digitaljournal.com/technology/new-smart-lightbulb-emulates-the-sun-in-your-home/article/436725>



National Energy Watch...

- 32. LIGHTFAIR® International 2015 Breaks All Records** - LFI's 2015 five-day run in New York May 3—7 posted an all-time trade show floor record with 268,580 net square feet housing 599 exhibitors, including 108 first-time exhibiting companies and 110 manufacturers headquartered outside the U.S. LFI 2015 registration grew to 29,900, a 15% gain over the previous record set in 2014, with representatives from 89 countries. For a full list of the LFI Innovation Awards submissions and winners, please visit <http://www.lightfair.com/lightfair/V40/lia/> Next year LFI TRADE SHOW & CONFERENCE: April 26 – 28, 2016 San Diego Convention Center, San Diego, CA. **See the video LIGHTFAIR 2015 highlights here:** https://www.youtube.com/watch?v=0zE_M0CLJ5k&feature=youtu.be
- 33. Energy Service Company Market Overview by Navigant Research** - The energy service company (ESCO) industry in the United States follows a modest revenue growth trajectory generated by the business of implementing comprehensive facility upgrades. Europe is expected to be the first key international market for the largest U.S. ESCOs. Although ESCOs have faced obstacles in developing markets outside the United States, a tipping point is nearing and momentum is expected in the mid- and long-term. According to Navigant Research, the U.S. ESCO market is expected grow from \$6.3 billion in 2015 to \$11.5 billion in 2024, while ESCO revenue in Europe is projected to grow from \$2.7 billion to \$3.1 billion. This Navigant Research report assesses the ESCO market for energy performance contracts (EPCs). <http://www.navigantresearch.com/research/energy-service-company-market-overview>
- 34. High Intensity Discharge (HID) Bulbs - Global Strategic Business Report 2015** - Global sales of HID lamps are declining as a result of the competitive threat of substitution posed by the LED lighting technology. LED lighting is gradually cannibalizing market opportunities in this space, supported by continued research and technological advancements that promise to make LEDs an ideal alternative to HID bulbs in the future. This market research report on HID Bulbs states that Asia-Pacific represents the largest market worldwide, supported by the presence of price sensitive countries in East Asia. In these countries, proliferation of LEDs is slow and gradual with HID bulbs still continuing to be used in infrastructure facilities such as stadiums, large public areas, movie theatres, roadways, pathways, parking lots, and warehouses, among others. For more information click on: http://www.researchandmarkets.com/publication/mdpu9ei/high_intensity_discharge_hid
- 35. NEMA Publishes ANSI C78.376-2014** - American National Standard for Electric Lamps— Specifications for the Chromaticity of Fluorescent Lamps. Last published in 2001, this revision modifies the specifications for the chromaticity of fluorescent lamps. It updates and partially harmonizes this ANSI (American National Standards Institute) standard with the IEC (International Electrotechnical Commission) chromaticity color point objectives and chromaticity tolerance in IEC 60081 Annex D. This standard covers the objectives and tolerances for the chromaticity of fluorescent lamps at their normal 100 hour rating point. Colors included are 2700K, 3000 K/warm white, 3500K/white, 4000K/4100K/cool white, 5000K, and 6500K/daylight. www.nema.org Purchased in hard copy for \$65. <http://www.nema.org/Standards/Pages/American-National-Standard-for-Specifications-for-the-Chromaticity-of-Fluorescent-Lamps.aspx> [ANSI C78.376-2014](http://www.nema.org/Standards/Pages/American-National-Standard-for-Specifications-for-the-Chromaticity-of-Fluorescent-Lamps.aspx)



- 36. *First Quarter a Mixed Bag for Consumer Lamp Indexes*** - NEMA's shipments indexes for consumer lamps saw mixed results during 2015 Q1, as year-over-year (y/y) declines were registered in two of the four lamp types. Incandescent A-line lamp shipments decreased by 89.4 percent while compact fluorescent lamps (CFL) dropped 9.4 percent. Halogen A-line and LED A-line lamps posted year-over-year increases of 61.5 and 153.6 percent, respectively. www.NEMA.org
- 37. *NEMA Publishes ANSI C136.30-2015*** - American National Standard for Roadway and Area Lighting Equipment—Pole Vibration. This is a new standard that was developed to assist the industry in reducing issues related to pole vibration. It covers the minimum vibration withstand requirements and testing procedures for poles used in roadway and area lighting. The guide is intended for poles of 50-foot mounting height and under. ANSI C136.30-2015 may be purchased in electronic or hard copy for \$50 on the NEMA website. www.NEMA.org
- 38. *NEMA Publishes LE 6-2014*** - Procedure for Determining Target Efficacy Ratings for Commercial, Industrial, and Residential Luminaires. It was updated to explicitly include LED technology and is of particular interest to recessed luminaire manufacturers, fluorescent lamp manufacturers, and HID manufacturers. It may be downloaded at no charge on the NEMA website: www.NEMA.org
- 39. *NEMA Lighting Systems Division Publishes Position Paper on Temporal Light Artifacts*** – TLAs are undesired changes in visual perception induced by a light stimulus whose luminance or spectral distribution fluctuates with time, for an observer in a certain environment. Depending on the details of the fluctuations, TLA consists of flicker and/or stroboscopic effect. In this position paper, NEMA asserts that current TLA standardization is hampered by lack of adequate TLA assessment metrics and that new flicker metrics and associated measurement methods for lighting are required. Currently applied metrics do not quantify TLA correctly because they do not fully account for the effects of both the frequency and the wave-shape of the light stimulus. <http://www.nema.org/Standards/Pages/Temporal-Light-Artifacts-Flicker-and-Stroboscopic-Effects.aspx>
- 40. *NEMA Publishes NEMA LSD 71-2014*** - Best Practices for Metal Halide Lighting Systems Relative to Lamp Rupture Risks. This is a new white paper developed by the NEMA Light Sources and Luminaire sections to provide updated educational information on the selection, operation, and maintenance of metal halide lighting systems with specific emphasis on the risks associated with lamp rupture. NEMA LSD 71-2014 may be downloaded at no charge AT www.NEMA.org
- 41. *Saving Energy in Buildings with Adaptive Lighting Systems: Solutions for the Retail Sector*** - The retail sector, which represents 13 percent of California's lighting electricity use, has historically not embraced the use of lighting controls to save energy. To address the slow adoption of adaptive lighting solutions in the retail sector, researchers developed and demonstrated an optimized retail lighting control strategy based on a set of control layers specifically designed to deliver maximum lighting energy savings and minimal negative impacts. The feature set includes specific recommendations for retail lighting power density and optimized control settings. Application of this feature set in retail environments is expected to save up to 65 percent of lighting energy use as compared to systems designed to current energy standards. <http://cltc.ucdavis.edu/adaptive-lighting-systems-retail-sector>



42. Electrical Wholesaling's 2015 Top 200 List - Find out which electrical distributors made the Top 200 Electrical Distributors and ' get more detailed information on the 50 largest companies by clicking on the links to capsule summaries on each of them. *Electrical Wholesaling's* editors will be adding more capsule summaries over the next few months. <http://ewweb.com/top-200/top-200-2015s-largest-electrical-distributors> Top 10 are:

Rank	Company Name	Town/City	State	2014 Sales	Employees	Locations	Senior Executive
1	Sonepar NA	Charleston	SC	8,500,000,000*	NA	934*	David Gabriel
2	WESCO Distribution	Pittsburgh	PA	7,520,000,000*	8,500*	460*	John Engel
3	Graybar Electric Co.	St. Louis	MO	5,978,861,000*	8,250*	260*	Kathleen Mazzarella
4	Rexel USA	Dallas	TX	5,422,839,891*	8,653*	605*	Brian McNally
5	Anixter International	Skokie	IL	4,453,500,000*	9100**	270**	Sam Zell
6	Consolidated Electrical Distributors (CED)	Irving	TX	NA	6,200	500	Kurt Lasher
7	HD Supply Power Solutions	Atlanta	GA	1,913,000,000	NA	NA	Joe DeAngelo
8	Border States Electric	Fargo	ND	NA	1,956	80	Tammy Miller
9	W.W. Grainger	Lake Forest	IL	NA	23,600**	558*	James Ryan
10	Crescent Electric Supply	East Dubuque	IL	1,066,000,000	1,800	140	Martin Burbridge

43. Panasonic Shuts Down Fluorescent Light Production in Indonesia, Laying Off 700 Employees - Panasonic's lighting business, including bulbs and fluorescent lights, was once a major profit generator for the company. The spread of LEDs, however, has forced the company to review its traditional lighting businesses. The company has spun off its fluorescent lamp and bulb manufacturing and sales into a separate company in April 2014, and its decision to withdraw its Indonesian production plant is also part of this process. About 90% of Panasonic's fluorescent lamps are made in Indonesia and sold in Japan, <http://www.ledinside.com>

City & State EnergyWatch...

44. Nation's Largest Net Zero Plus Commercial Building Retrofit Starts Construction in LA - Upon completion, the newly-retrofitted 142,000 square foot Net Zero Plus Electrical Training Institute, is designed to be an "intelligent building of the future" and generate more energy on annual basis than it uses. The building will demonstrate the future of smart energy efficiency, microgrid system integration, energy storage solutions, and advanced lighting controls and automated building management systems. The building has the capacity to produce approximately one megawatt of energy annually and will use no energy from the electric grid. It will reduce lighting usage by 46%.

45. PSE&G and Robert Wood Johnson University Hospital Rahway Mark Completion of \$3.4 Million in Energy Efficiency Upgrades - The work was completed through the PSE&G Hospital Efficiency Program, a \$174 million effort by New Jersey's oldest and largest gas and electric utility that will help more than 40 hospitals to better manage their energy consumption. The energy efficiency improvements at RWJ Rahway include a major upgrade to the hospital's air conditioning chiller plant, the installation of energy efficient lighting fixtures, the replacement of old, inefficient motors with new energy efficient models and the retrofitting of existing heating boilers with new energy efficient burners. 6/02PR Newswire



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46. Chicago School District Reduces Lighting Wattage By 40% with Acuity Brands Integrated LED Lighting and Controls -

Community Consolidated School District 59 in Illinois selected LED lighting and controls from Acuity Brands, Inc. (NYSE: AYI) to improve the overall learning environment in its schools.

Graybar, the electrical distributor tasked with effectively keeping the project on schedule and within budget, outfitted a total of 480 classrooms across 14 of the district's campuses with more than 5,000 VT Series LED luminaires from Lithonia Lighting®. The

lighting was integrated with the nLight® control system from Acuity Controls to reduce energy usage while offering users flexible configurations to meet individual classroom needs. For more

information about education lighting solutions from Acuity Brands: www.acuitybrands.com/education



47. Cisco, Sprint Helping Kansas City Become Smart and Connected - Deployment of a Smart+Connected City framework is underway in Kansas City, Missouri, to transform urban services and enhance the citizen experience. As part of this framework, Cisco is working with a group of business partners to bring together an ecosystem to develop applications including smart lighting, digital kiosks, a data portal, and smart water innovations. The intelligent lighting platform that converts city lighting infrastructure into a distributed sensing platform to collect real-time data for smart city applications, such as smart parking, lighting, retail analytics, and public safety and security. At the same time, the platform enables intelligent, efficient lighting control that results in energy and cost savings, more effective and higher-quality lighting, and reduction in both carbon and light pollution. <http://www.smartgridnews.com>

48. Kansas City Passes Energy Benchmarking and Transparency Bill - The City Council of Kansas City, Missouri, passed a building energy benchmarking and transparency ordinance on June 4 that would require large municipal, multifamily, and commercial buildings to measure and disclose their energy use. Such policies make it possible to compare the energy performance of different buildings—similar to the miles-per-gallon ratings of different cars—allowing prospective buyers and renters to understand the full cost of operating the buildings in which they work, live, learn, and play. www.NEMA.org

49. Groups in SD Receive \$144,000 to Be More Energy Efficient - The U.S. Department of Agriculture is awarding \$144,000 to farmers, ranchers and small business owners in South Dakota to help them be more energy efficient. Many groups in South Dakota will use the grants to replace their lighting systems with energy efficient LED lights. The funding for the 14 projects in South Dakota was announced alongside a total of \$7.6 million for 544 projects nationwide. 6/11 AP

50. Energy Commission Approves 2016 Title 24, Part 6 - The California Energy Commission unanimously approved building energy efficiency standards that will reduce energy costs and increase comfort in new and upgraded homes and other buildings. The standards, which take effect on January 1, 2017, include significant changes to the mandatory requirements for residential lighting. The requirements associated with high quality lighting with controls are expected to nearly halve the energy needed for lighting in new homes. <http://cltc.ucdavis.edu/article/energy-commission-approves-2016-building-energy-efficiency-standards>



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Monthly Special Feature... *DOE CALiPER reports LED PAR38 Lamps*

The following CALiPER reports provide detailed analysis of LED PAR38 lamp performance, covering basic performance characteristics as well as subjective evaluation of beam, shadow, and color quality. Pending reports will offer analysis on flicker, dimming and power quality characteristics; stress testing; and lumen and chromaticity maintenance. These reports are intended to educate the industry on market trends, potential issues, and important areas for improvement.

- [Application Summary Report 20: LED PAR38 Lamps](#)
An initial sample of 38 LED PAR38 lamps and 5 halogen and CFL benchmarks underwent photometric testing according to IES LM-79-08. CALiPER Application Summary Report 20, which also includes an addendum covering 6 additional LED products and 3 additional benchmarks that were similarly tested, focuses on the basic performance characteristics of the LED lamps compared to the benchmarks, as well as performance relative to manufacturers' claims. (34 pages, November 2012—Addendum September 2013). Following the initial CALiPER report on LED PAR38 lamps, several additional special investigations were initiated. The results of these investigations are divided into four reports, each of which includes new data for all or a subset of the products described in Application Summary Report 20. Information on basic performance characteristics—such as efficacy, lumen output, and beam angle—is generally not repeated in any of the special investigation reports.
- [Report 20.1: Subjective Evaluation of Beam Quality, Shadow Quality, and Color Quality for LED PAR38 Lamps](#)
This report focuses on human-evaluated characteristics, including beam quality, shadow quality, and color quality. Using a questionnaire that included rank-ordering, opinions on 27 of the Report 20 PAR38 lamps were gathered during a demonstration event for members of the local Illuminating Engineering Society (IES) chapter. This was not a rigorous scientific experiment, and the data should not be extrapolated beyond the scope of the demonstration. The results suggest that many of the LED products compared favorably to halogen PAR38 benchmarks in all attributes considered. LED lamps using a single-emitter design were generally preferred for their beam quality and shadow quality, and the IES members' ranking of color quality did not always match the rank according to the color rendering index (CRI). (31 pages, October 2013)
- [Report 20.2: Dimming, Flicker, and Power Quality Characteristics of LED PAR38 Lamps](#)
This report focuses on the flicker and power quality performance of the Series 20 lamps at full output and various dimmed levels. All of the Series 20 PAR38 lamps that manufacturers claimed to be dimmable (including all halogen lamps) were evaluated individually (one lamp at a time) both on a switch and under the control of a phase-cut dimmer designed for use with "all classes of bulbs." Measurements of luminous flux, flicker, and power quality were taken at 10 target dimmed settings and compared with operation on a switch. Because only a single unit of each product was evaluated on a single dimmer that may or may not have been recommended by its manufacturer, this report focuses on the performance of the products relative to each other, rather than the best-case performance of each lamp or variation in performance delivered from each lamp. Despite these limitations, the results suggest that LED performance is improving, and performance trends are beginning to emerge, perhaps due in part to the identification of preferred LED driver strategies for lamp products. (32 pages, March 2014)
- [Report 20.3: Stress Testing of LED PAR38 Lamps](#)
A small sample of each of the Application Summary Report 20 PAR38 lamp types underwent stress testing that included substantial temperature and humidity changes, electrical variation, and vibration. The results do not directly address expected lifetime, but can be compared with one another, as well as with benchmark conventional products, to assess the relative robustness of the product designs. (24 pages, December 2014)
- [Report 20.4: Lumen and Chromaticity Maintenance of LED PAR38 Lamps](#)
This report focuses on lumen maintenance, chromaticity maintenance, and catastrophic failure in 32 of the Series 20 LED PAR38 lamps and 8 benchmark lamps, which were monitored for nearly 14,000 hours at ambient temperatures between 44°C and 45°C. (66 pages, December 2014)

