ENERGY OBSERVER
A MONTHLY NEWSLETTER FROM AMERLUX®

MAY 2024

Amerlux Commercial Market

Commercial LED Fixtures as the foundation - We see light before we see anything else. As humans, we immediately interact with light on a subconscious level. The light sets the tone for the space. The light can say "we build great things here" or "we don't care about the details because 'good enough' is good enough." It all starts with the light. We treat lighting solutions as the foundation for a space and take it from there. The light sets the mood for the space and directs people where to go and encourages the desired behavior. Our engineers create products to enhance the comfort of a room and boost the space's functionality.

We understand light is more than mere illumination. It's an investment. The right light translates visual performance into profitability. For good or for bad, lighting has a huge footprint on your organization's bottom line. Switching your building to LED lighting delivers sizeable savings.

National LED Market Observer

1. **DOE's GSL Final Rule Raises Lamp Efficacy Up to 83-195 LPW** - On April 12th, the U.S. Department of Energy (DOE) issued a final rule for General Service Lamp (GSL) standards. The new standards will raise GSL efficacy requirements from the current 45 lpW (aka the backstop), up to 83 – 195 lpW, depending on lamp type and lumen output. The previous 45 lpW backstop was selected to phase out nearly all incandescent and halogen lamps. The new 83 – 195 lpW final rule will likely eliminate every GSL technology except LED, including CFL, OLED, HID, and others. The new final rule will be enforced starting July 25, 2028. DOE's GSL Final Rule Raises Lamp Efficacy Up To 83-195 LPW (lightnowblog.com)

2. **DOE Finalizes Efficiency Standards for Lightbulbs** - The U.S. Department of Energy (DOE) today finalized Congressionally-mandated energy efficiency standards for general service lamps (GSLs), which include the most common types of residential and commercial lightbulbs. These standards— which will go into effect in July of 2028 for newly produced bulbs—are expected to save American families $1.6 billion annually on household energy costs, significantly cut energy waste, and slash harmful greenhouse gas pollution. Over 30 years, DOE projects these updated standards will save Americans more than $27 billion on their utility bills and cut 70 million metric tons of dangerous carbon dioxide emissions. The DOE's final rule calls for efficiency levels to rise from 45 lumens per watt to more than 120 lumens. DOE Finalizes Efficiency Standards for Lightbulbs to Save Americans Billions on Household Energy Bills | Department of Energy

3. **US Inflation Rises to 3.5% as Prices Remain Elevated** - Consumer price increases remained high last month, boosted by gas, rents, and car insurance, the government. The March figures, the third straight month of inflation readings well above the Fed's 2% target, threaten to torpedo the prospect of multiple interest rate cuts this year. Measured from a year earlier, these core prices were up 3.8%, unchanged from the year-over-year rise in February. The Fed closely tracks core prices because they tend to provide a good read of where inflation is headed. Though inflation has since plummeted from its peak of 9.1% in June 2022, average prices are still well above where they were before the pandemic despite a healthy job market, and near-record-high stock market. US Inflation Rises to 3.5% as Prices Remain Elevated | Newsmax.com

4. **Midstream Utility Lighting Rebates Expanding in E-Commerce** - More midstream utility lighting rebates are becoming available through online commercial lighting sales. Two examples are EncentivEnergy's UtilityGenius Commercial Storefront, as well as Bulbs.com. Commercial Storefront is the latest service from EncentivEnergy, the company behind UtilityGenius, an online utility rebate finder / searchable database. Commercial Storefront has negotiated arrangements with ConEd (in NYC) and PECO (in Eastern Pennsylvania) and a variety of electrical & lighting distributor partners of each utility midstream program, to feature instantly rebated lighting products in an ecommerce platform. The ConEd ecommerce site is here and features rebated products from 12 distributors. The PECO ecommerce site is here and features rebated products from 4 distributors. Midstream Utility Lighting Rebates Expanding In E-Commerce | (lightnowblog.com)

5. **Legendary Cannabis Grower David Holmes on LED Conversion: 'The Results Blew Us Away'** - For the past 25 years, David Holmes has been growing cannabis indoors and has experienced firsthand the peaks and valleys of California's cannabis market. Holmes has always used HPS lights to power plant growth in the LA facility's five flower rooms. But Holmes reached out to the Fluence team, who he had worked with to install SPYDR LEDs in his two-tier veg room and RAZRs in the clone room, to discuss retrofit options. The increase in yield was much higher than predicted. After just one harvest cycle with the new lights, Clade9 went from producing 180 pounds on average per room to generating 281 pounds. Holmes says the customer reception was positive, and now he is hoping to retrofit the rest of the facility with LEDs as soon as possible. https://www.ledinside.com/news/2024/4/2024_04_08_07

6. **Has the Horticultural Lighting Drought Run Its Course?** - A flurry of announcements from Sollum and Signify suggests that growers are once again buying LED illumination for greenhouses and vertical farms. The flurry of announcements from Sollum backs up the recent observation from lighting giant Signify and LED maker ams Osram that the prolonged drought in horticultural lighting sales is over. The industry has stalled for several reasons, including the high price of energy that was discouraging growers from deploying artificial lighting regardless of how energy efficient it is. Signify and Sollum both also continue engaging in horticultural lighting studies with universities and research centers. Has the horticultural lighting drought run its course? | LEDs Magazine

7. **NASA Taking LED Horticulture to the Moon** - Lunar crops will include thale cress, possibly mizuna greens, and other tasty treats for astronauts to eat and for earthlings to study. Call it Act 2 of Crops in Space. NASA, which has been growing plants under LED lights for years on the International Space Station, is now planning to do the same on the Moon. The space agency has tapped Boulder, Colo.'s Space Lab technologies to lead the development of an indoor growth chamber — akin to a small vertical farm — that astronauts will use to grow three crops on the moon under LEDs, as part of the Artemis III mission. NASA taking LED horticulture to the moon | LEDs Magazine

8. **The MTA Upgrades New York City Subway System Lights to LEDs** - The Metropolitan Transportation Authority (MTA) says "let there be light" in New York City's subway stations—and it will be brighter. In an effort to brighten every platform and mezzanine throughout the Big Apple's 472 subway stations, the MTA has begun implementing their plan to switch all 150,000 fixtures from fluorescent lighting to LED. The lighting replacement is projected to yield an estimated $5.9 million in annual recurring energy and material cost savings while addressing passengers safety needs, earning the hearty approval of riders. The project, begun in late January 2024. The new LED luminaires are designed for extreme environments and offer high durability and customization options in addition to their energy efficiency. The MTA Upgrades New York City Subway System Lights to LEDs - Electrical Contractor Magazine (ecmag.com)

9. **Layering Developing Standards: Bluetooth NLC launches by Craig DiLouie** - Bluetooth NLC, a full-stack standard that layers onto previous Bluetooth wireless lighting standards to enable true multivendor interoperability across the system, was launched in September 2023 by the Bluetooth Special Interest Group (SIG), Kirkland, Wash. The Bluetooth SIG anticipates this will open the door to mass adoption of wireless networked lighting controls in commercial buildings by addressing lack of standardization, and to a certain extent, complexity. Networked lighting controls can maximize energy savings and unlock value-added services such as space use, indoor wayfinding and asset tracking through data collection. The demand for energy efficiency will continue to escalate with decarbonization and electrification, and lighting controls can deliver savings. The 1.0 specifications cover six device roles: occupancy sensor, ambient light sensor, energy monitor, scene selector, dimming control and lightness controller. One hardware device can embody multiple roles. The key is all devices in the system are interoperable and interchangeable, regardless of manufacturer. Layering Developing Standards: Bluetooth NLC launches - Electrical Contractor Magazine (ecmag.com)

10. **Lighting Upgrades for 66 Major & Minor League Baseball Parks** - To-date, more than 50 Minor League stadiums, and 16 Major League ballparks have upgraded to LED lighting that meets the MLB lighting standards. There is no maximum lighting level requirement. During a day game, on a bright day, the light level on the field can measure between 7,000 to 10,000 foot-candles. For night games, the level at most major league parks is between 300 to 400 foot-candles. The new stadium lighting increases light levels, improves uniformity, minimizes glare, improves visibility for fans and players to track the baseball, allows for light-to-sound synchronization, as well as RGB-U color-changing light shows to celebrate big moments in the games. Most of the stadiums are installing the Musco Show-Light Pro system as part of the Musco Total Light Control System. Lighting Upgrades For 66 Major & Minor League Baseball Parks | (lightnowblog.com)

11. **DOE Launches L-Prize Manufacturing & Installation Phase** - The U.S. Department of Energy (DOE) launched the Manufacturing & Installation (M&I) Phase of its three-phase Lighting Prize (L-Prize®) competition, a DOE American-Made Challenge designed to spur groundbreaking innovation, domestic manufacturing, and the benefits of an inclusive, clean-energy economy for next-generation lighting in commercial buildings. Unfolding over 16 months, the M&I Phase will reward production and installation of products that meet L-Prize technical requirements in real-world buildings. Up to four competitors earning the most points based on technical and design innovation, U.S. content, production, and installation will share an award of $10 million. Visit the L-Prize website to view the complete competition requirements and timeline.

12. **The Benefits of Tunable White Light by Gregory Kay** - New technologies offer lighting designers, contractors, and building owners customizable solutions to improve occupant productivity, health, and well-being.Today, tunable white lights offer a reliable technology that can help create an environment that supports alertness and productivity by helping workers maintain their natural circadian rhythm. Tunable white or Kelvin-changing LED lighting allows for the adjustment of correlated color temperature (CCT) and/or the brightness of a fixture or source. Tunable white LED lighting combines the output of multiple diodes — typically a warm white LED and a cool white LED with a linear cross-fade, or blend, between them forming the basis for the light source's tunable white color spectrum. Example spectrums might range from 2000K to 4000K and 2000K to 6500K. Tunable white light can have profound effects on both the physical and mental health of building occupants in myriad verticals. The latest improvements to CCT can help provide a more positive experience for everyone. The Benefits of Tunable White Light | EC&M (ecmweb.com)

13. **CLTC's 2022 Title 24, Part 6 Lighting Standards Videos** - The California Lighting Technology Center announces the release of its updated video series covering the 2022 Title 24, Part 6 lighting requirements. These videos aim to provide practical insights for implementing code-compliant lighting in both nonresidential and residential buildings across California. The video series features five segments, each focusing on a specific aspect of the 2022 Energy Code, effective Jan. 1, 2023:

- Lighting Control Systems
- Indoor Lighting Alterations
- Lighting Controls Acceptance Testing
- High-Efficacy Lighting for Residences
- Outdoor Lighting & Sign Control Requirements

14. **WHITE PAPER: District Energy Efficiency Through Flow Metering by Panametrics** - As energy costs rise, energy efficiency becomes increasingly important. This has been recognized in both public and private sectors. Energy efficiency affects all aspects of our lives and no more so than in the building environment. Forty percent of energy consumption and carbon emissions in Europe and the United States comes from the way our buildings are lit, cooled and heated. Even comparatively small changes in energy performance and the way we use each building will have a significant effect in reducing total energy consumption. This paper looks at energy efficiency and how energy monitoring through flow metering can help to achieve energy saving targets and enable various tenants within building complexes to pay a fair price for the energy they consume. Brand Feature: District energy efficiency through flow metering (facilitiesnet.com)

15. **TRAINING: Lighting Controls Updates Utility Rebates Course** - The Lighting Controls Association has updated EE107B: Lighting Controls and Commercial Lighting Rebates, a course in the organization's Education Express program. Utilities offer a variety of rebate programs to encourage public adoption of advanced, energy-saving lighting and controls in existing buildings. These programs often offer a strong incentive to incorporate lighting controls with rebates that are substantial, historically consistent, recognize the most popular control types, and are geographically widely available. New rebates promoting networked lighting control continue to grow in availability, specifically promoting the most advanced control options in the market. Lighting Controls Updates Utility Rebates Course (lightingcontrolsassociation.org)

16. **The Wonderful, Widening World of LEDs by Liesel Whitney-Schulte** - The impact of LEDs has proven to be significant and the "LED revolution" shows no signs of slowing. Lighting used to account for the largest share of electricity consumption in US commercial buildings. In 2003 the average was 38% but, thanks to widespread energy-saving LED technology, lighting's share fell to 17% by 2017. As adoption of LEDs expanded, energy use dropped to 10% in the US Energy Information Administration's most recent Commercial Buildings Energy Consumption Survey (published in 2022 based on 2018 data). Often taking a backseat in the big energy conversations around renewables, battery storage, EVs, and other high-profile solutions, the adoption of LED lighting technology owes its success to several influences including state and federal policies, industry standards, manufacturing advances, advocacy, and incentives that make this already money-saving technology even more affordable. To find and compare the latest LED products appropriate for an array of lighting applications, you can search and download information on the DLC's SSL QPL for free. Simply create a MyDLC account to start exploring! The Wonderful, Widening World of LEDs | EC&M (ecmweb.com)

17. **How Amazon Became the Largest Private EV Charging Operator in the US** - In a little more than two years, Amazon has installed more than 17,000 chargers at about 120 warehouses around the US, making the retail giant the largest operator of private electrical vehicle charging infrastructure in the country. Amazon is on track to purchase by next year as much electricity produced by solar, wind and other carbon-free sources as it uses to power its operations. And in Rivian, which Amazon has backed with a massive investment and an order for 100,000 custom-built electric delivery vans – 13,500 of which have been delivered to date – the company has suggested it can eliminate much of the emissions associated with its last-mile delivery business. Amazon Electric Vans Powered By 17,000 EV Chargers - Bloomberg

18. **FCC Finalized IoT Cybersecurity Labeling Program** - The Federal Communications Commission (FCC) launched a voluntary cybersecurity labeling program for wireless consumer Internet of Things (IoT) products, including lighting, on March 14, 2024. The program is called the **U.S. Cyber Trust Mark Program** and it is designed to help consumers make informed purchasing decisions, as well as incentivize manufacturers to meet higher cybersecurity standards. Qualifying consumer smart products that meet the new standard will be able to display the U.S. Cyber Trust Mark label. Some highlights of the program at: FCC Finalized IoT Cybersecurity Labeling Program | LightNOW (lightnowblog.com)

19. **DLC Releases Draft of NLC v5.1 Technical Requirements** - The Design Lights Consortium (DLC) has released their draft of v5.1 Networked Lighting Control technical requirements (NLC5.1). NLC5.1 is a minor revision that contains updates to the policy's energy monitoring and cybersecurity requirements. There will not be a delisting associated with the policy. Existing listed v5.0 NLC will continue to be DLC listed. DLC Releases Draft of NLC v5.1 Technical Requirements (lightnowblog.com)

20. **View Your Digital Ec&M Magazine Issue Today** -
EC&M - April 2024 by Endeavor Digital Editions - Issue

- Power over Ethernet (PoE) Enables New Lighting Options
- Demystifying IECC and ANSI/ASHRAE/IES Lighting and Control Requirements
- Best Practices for Effective Lighting Projects

21. **Bluetooth NLC Wants to Change the Game** - In September 2023, the Bluetooth Special Interest Group (SIG) released Bluetooth® NLC, a series of specifications that define roles and responsibilities for common lighting control devices. Bluetooth NLC builds on wireless standards Bluetooth Low Energy (LE) and Bluetooth Mesh to provide full-stack standardization. By ensuring true multivendor interoperability across the control system, the Bluetooth SIG believes this will enable mass adoption of wireless networked lighting controls in commercial buildings, including small and medium-sized as well as large buildings. Lighting Controls Association – The Lighting Controls Authority

22. **Horticulture Lighting for Sport Fields** - Nowadays, sports business demands the best and most modern architecture in stadiums. Nevertheless sometimes some factors such as lighting must be sacrificed in order to achieve architectural demands and create new, modern and impressive stadiums. Grass requires a daily minimum amount of light to stay in shape with healthy green color and rooting. When natural light is not enough at your sports field, it doesn't matter how much fertilizer you use, you will not get the results you are expecting. As a result you will get less plant density in your grass and more importantly.. low rooting. Provide great lighting technologies with the best light output, energy efficiency and, of course, best light quality. Horticulture Lighting for Sport Fields - LEDinside

23. **Under One Sky: Uniting Against Light Pollution** - Save the date for the highly anticipated global conference, Under One Sky, set to take place on November 8th and 9th. This 24-hour virtual event aims to inspire and empower individuals to combat light pollution worldwide. With a diverse lineup of speakers, engaging panels, and networking opportunities, Under One Sky promises to be a transformative experience. DarkSky is currently seeking speakers passionate about dark sky advocacy or experts in fields related to light pollution, health, and more. For those interested in contributing, contact engagement associate Chris Peterson at chris.peterson@darksky.org. Join the movement to preserve our night skies and protect nocturnal habitats for future generations. Click to visit DarkSky

Global LED Market Observer

24. Utilities Are Embracing A.I. by Rick Laezman - The energy industry has seen its share of disruptive technology in recent years. Now, artificial intelligence (A.I.) is about to disrupt it even more. The industry is welcoming the change. According to a new study by IBM, Armonk, N.Y., a preponderance of energy and utility companies have opened the door to A.I. In January 2024, the computer company announced the findings of its Global A.I. Adoption Index 2023. Among other things, the study found that 74% of energy and utility companies are "embracing" A.I. A.I. can be used to improve many different processes that span the entire spectrum of activities within a business. The list includes automation of IT processes, business analytics or intelligence, marketing and sales, supply chain intelligence and many others. Utilities Are Embracing A.I. - Electrical Contractor Magazine (ecmag.com)

25. MIT Study: Taking AI to the Next Level in Manufacturing - Manufacturers rightly view AI as integral to the creation of the hyper-automated intelligent factory. They see AI's utility in enhancing product and process innovation, reducing cycle time, wringing ever more efficiency from operations and assets, improving maintenance, and strengthening security, while reducing carbon emissions. Some manufacturers that have invested to develop AI capabilities are still striving to achieve their objectives. This study from MIT Technology Review Insights seeks to understand how manufacturers are generating benefits from AI use cases—particularly in engineering and design and in factory operations. Taking AI to the Next Level in Manufacturing (microsoft.com)

26. LED Displays Empower Sports Industry as AI Fever Rages in 2024 - Artificial intelligence (AI) is growing at an astounding rate. Sports is just one of the many fields empowered by AI. Other areas such as tourism, educational conferences, outdoor advertising, smart homes, smart cities, and intelligent transportation are also domains where AI technology is being applied and promoted. In these areas, the application of LED displays is also crucial. In the future, the relationship between AI technology and LED displays will become more interactive and close. As AI continues to develop, LED displays will see more innovations and applications. By integrating technologies such as human-computer interaction, brain-computer interfaces, and metaverse, the LED display industry is evolving towards a high level of intelligence and personalization. LED Displays Empower Sports Industry as AI Fever Rages in 2024 - LEDinside

27. Philips Hue Expands Partnership with Samsung SmartThings - Signify and Samsung's global connected living platform, will expand their partnership to make it even easier for users to enjoy thrilling TV entertainment with surround lighting. Philips Hue and Samsung SmartThings expand their collaboration to optimize the interaction between the Philips Hue Sync TV app, Samsung TVs, and the SmartThings ecosystem. For over a year, viewers have been able to connect their compatible Samsung TV with their Philips Hue lights to create an immersive lighting experience for their home cinema.1 In spring 2024, the Philips Hue Sync TV app will be released in new countries, get a monthly subscription option, and be integrated with the SmartThings mobile app for even easier control. Together, Philips Hue and SmartThings will bring the potential of the Philips Hue Sync TV app for Samsung TVs to even more people around the world. Philips Hue expands partnership with Samsung SmartThings - LEDinside

Monthly Feature:

Fluorescent Tube Bans and the Effect on Lighting Rebates by BriteSwitch - Fluorescent tubes have long been a staple in the US, illuminating warehouses, offices, and public buildings across the nation for decades. However, recent legislative actions in several states signal a significant shift in lighting landscape. Eight states have passed legislation that will prohibit the sale of fluorescent tubes in the next few years. But how will these laws impact the lighting market in general and the valuable rebates for LED replacement tubes?

Fluorescent Lamp Bans Come from State Legislation, Not Federal

Unlike the Federal EISA legislation that went into full effect last year, which banned the sale of inefficient general service lamps (like A19s), the fluorescent lamp bans are issued by individual states. Across the United States, some states have taken proactive measures to address the environmental concerns associated with fluorescent lighting technology. Currently, a total of eight states have passed legislation aimed at restricting the sale of fluorescent tubes. Vermont was the first state to enact such legislation when it passed a bill in 2022. The law prohibited the sale of certain fluorescent tubes, effective January 1, 2024. Since then, other states have passed similar legislation, the most recent being Washington state, although that law doesn't go into effect until 2029.

State	Fluorescent Tube Phaseout Date
Vermont	January 1, 2024
California	January 1, 2025
Colorado	January 1, 2025
Oregon	January 1, 2025
Rhode Island	January 1, 2025
Hawaii	January 1, 2026
Maine	January 1, 2026
Washington	January 1, 2029

Most of these laws also restrict integrated compact fluorescent lamps (CFL-i) and pin-based CFL-ni lamps, although they may go into effect at different times. The sheer volume of 4' linear tubes in the marketplace, though, makes this aspect of the law much more impactful to the industry.

Fluorescent Tube Bans Aren't Technically About Energy Usage

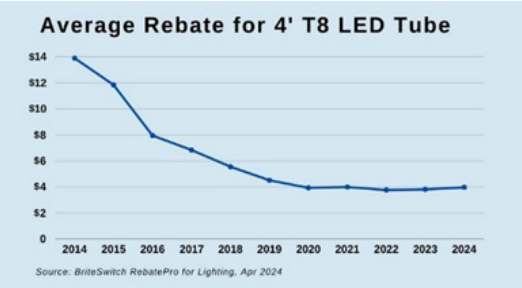
Contrary to popular belief, the bans on fluorescent tubes are not solely about energy efficiency. The laws actually focus on the contents of the lamps themselves. All fluorescent tubes contain mercury, a hazardous neurotoxin if people are exposed to it. In everyday operation, these lamps provide no danger, but it becomes trickier when they break or have to be disposed of. The mercury content means that fluorescent lamps must be recycled to avoid the mercury leeching into the environment when disposed. But many people don't recycle these lamps. According to Clean Lighting Coalition, an astounding 75% of fluorescent tubes are not disposed of properly. Even a small amount of mercury can significantly contaminate a lake or river. An estimated 75% of fluorescent tubes are not properly disposed of.

In the past, this small amount of mercury was a necessary evil, the only way to make lighting more efficient than incandescent. But now, with LEDs available, mercury is no longer needed. While energy savings are also important, they are not targeted in most of these laws because it's much trickier for states to set energy efficiency standards when a federal standard already exists. However, they can easily pass legislation that focuses on environmental pollutants.

What's Going to Happen to Rebates for LED Tubes?

For years, the market has relied on rebates and incentives to help businesses make the switch from fluorescent to LED. Currently, 78% of the country is covered by a commercial lighting incentive and nearly all of these programs provide rebates for LED tubes. With an average rebate of $3.96 per tube, this incentive helps defray the cost of upgrading.

The average rebate for a 4' LED Tube is currently $3.96 (Source: BriteSwitch RebatePro for Lighting)



In states with no legislation affecting the sale of fluorescent lamps, rebate availability will likely remain the same. But will states continue to offer a rebate where the fluorescent versions of the lamps are no longer available? It's hard to say at this point. Vermont's ban went into effect earlier this year, but their state rebate program, Efficiency Vermont, removed tubes from the program when the legislation first passed in 2022. However, Vermont is just one example, and it's too hard to predict what will happen in the other states. Last year, many people speculated that rebates for screw-in lamps like A19s would disappear in 2024 because of EISA. While some rebates were indeed discontinued, it was a much smaller number than people expected. More surprising was that in areas that kept the screw-in rebates, the dollar amounts actually increased. For fluorescent tubes, incentives may still be required to get customers to switch to LED. The lamps have an average rated life of 36,000 hours, which can easily last over 10 years for places like offices and schools. It can be years before their lighting burns out and they need to replace them with an LED tube, so utility incentives are likely still required to get them to switch. In addition, many programs are struggling to meet their energy savings goals, and discontinuing rebates for T8/T5 to LED would make it even more challenging.

Use the Upcoming Bans to Close More Projects in 2024

As the countdown begins for states with impending bans on fluorescent tubes, the lighting industry has a unique opportunity to leverage these changes to increase sales. Projects located in these areas should be completed before the ban goes into effect to maximize the potential rebates. That ensures the customer will receive the best possible incentive for the fluorescent to LED tube conversion. Reach out to customers in those areas and let them know about the impending change and that LED tube rebates may possibly decrease, or go away completely, once the ban goes into effect in their state.

Stay Up-To-Date on Fluorescent to LED Rebates

RebatePro for Lighting makes it easy to find all the rebates for fluorescent to LED tube upgrades and keep track of their changes. Rebates are already dynamic enough, but with new legislation like the above, it's more important than ever to stay on top of the rebates. Whether you're part of a rebate processing team or a contractor looking to start using rebates as a sales tool, RebatePro for Lighting simplifies the rebate process for you.

Fluorescent Tube Bans and the Effect on Lighting Rebates (briteswitch.com)