ENERGY OBSERVER
A MONTHLY NEWSLETTER FROM AMERLUX®

APR 2023

Effective Sales Presentation Skills by Bill Attardi – Now you know why they call it March Madness my friends..... well, it has its Final Four: 4 UConn Huskies vs. 5 Miami Hurricanes; 5 SDSU Aztecs vs. 9 FAU Owls, congratulations to them. Maybe you noticed, not a one or a two or a three seed are in the Final Four.....never happened before. Amazing! Not to worry, the Major League Baseball season starts this Thursday. As Jackie used to say, "How sweet it is!" Who do you like this year? Do I hear GO YANKEES! In my house I do, well I may be the only one as my lovely Linda is a Phillies fan, well, she was born and raised in Philadelphia so what choice does she have. She bought me a book all about the history of that team... maybe I will read it someday if I know where I put it.

But I digress.....this is about giving an effective sales presentation to a group of customers, and closing that sale. Not as easy as it sounds. Had the great pleasure to be a speaker at a recent Amerlux sales meeting here in New Jersey when I presented this topic. Went well, broke it down into five (5) segments, and here is the gist of it: (by the way, looking to give a virtual learning session on this on EdisonReport.... stay tuned)

1. **Preparation Strategy – The Will to Prepare to Win**
   - Come fully prepared...
   - Always start with knowing your audience / customer
   - Why You?
   - What is Your Objective
   - The Power of PowerPoint: Verbal & Visuals working together
   - Fundamentals of Effective Visuals – Visual Esperanto
   - Effective use of color to connect with your audience
   - Creative Opening / Meaningful Content / Compelling Close
   - Create closing slide first – all roads lead to your destination

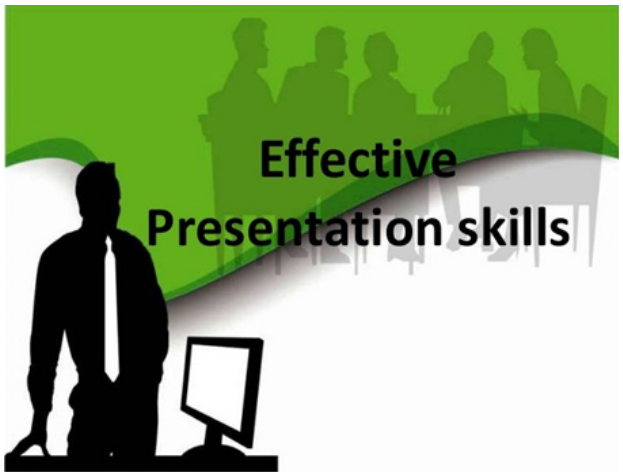
2. **Presentation Strategy – Bring to the meeting something no one else knows...**
   - It's always a Selling Situation
   - Connect with your audience
   - What is your Call to Action
   - Rationale to take that action / Reasoning
   - Project the attitude of your audience

3. **Organizing the Presentation – FFAB (Features / Functions / Advantages / Benefits)**
   - Create clear / thought starter slides – six by six rule
   - Creative Opening – your first impression
   - Meaningful Content – relevant to your audience
   - Compelling Close – lasting impression
   - Say it with color
   - Create a climate for learning

4. **Techniques in Presenting – When you stop getting better, you stop being good**
   - Plan & Promote Interaction
   - Eye contact – you are talking to individuals that happen to be in a group
   - Be clear on the process and Get Confirmation
   - Confirm understanding on a continuing basis
   - Re-enforce the need to continue the process
   - Project Acceptance and Handle Resistance

5. **Personal Delivery – Mechanics of Communicating Effectively Orally**
   - The Audience – maintain control
   - Your Body – commanding positioning
   - Your Voice – clear / articulate / no verbal distractions
   - Room set-up.....proper lighting and 45° angle to your audience
   - Audience reads left to right – you stand on their left; slides on their right

You owe your audience a good performance!



National LED Market Observer

1. **Vermont Bans Sale of CFL Lightbulbs** - The political website The Hill reported that the ban takes effect on February 17, 2023 one year after Vermont's Department of Environmental Conservation (DEC) announced the restriction of "screw-based mercury containing compact fluorescent lamps." Retailers were given a year to remove inventory. In banning the CFLs, the DEC endorsed the use of LEDs. Vermont will become the first state to ban linear fluorescent lamps, banning the long, tube-shaped lamps as of January 1, 2024. Vermont Bans Sale of CFL Lightbulbs - Facility Management Lighting Quick Read (facilitiesnet.com)

2. **2023 Predictions and Anticipated Trends by EnergyTrends** - In this Special Issue edition, you'll find the best insights submitted by Energy Central Community Members & Experts.

2023 Predictions and Anticipated Trends for the Power Industry - January/February | Energy Central
- Four technology trends that will fuel utilities' digital strategies in 2023
- Investing in Our Future: Energy Equity in Capital Planning
- Two Key Power Industry Trends for 2023
- Focusing on Customer Experience–Resilience Is Critical
- 4 Trends That Will Reshape the Energy Landscape in 2023
- 2023 Energy Predictions
- U.S. power industry: The direction ahead in 2023
- The Energy Industry in 2023: 6 New Year's Resolutions for Power Utilities
- Are we at GO for the Green Grid?

3. **Ubicquia: Powerful Savings Start Right Away** - Ubicquia®, Inc. offers municipalities, utilities, and communication service providers cost-effective and scalable platforms for deploying smart city, connectivity, and smart grid solutions. A city with 90,000 streetlights saved more than $44 million over 15 years while making a positive impact on the climate, by reducing CO2 gases by over 90,000 tons. Check out other scenarios in this Cost Savings Analysis to see how much a city can save when they implement lighting controls as part of their LED conversion. https://www.ubicquia.com

4. **NEMA Welcomes 13 New Members** - The National Electrical Manufacturers Association (NEMA) welcomes 13 new companies into NEMA membership: press@nema.org Most significant is TESLA a leading manufacturer of electric vehicles, battery energy storage, solar panels, and solar roof tiles... but you already know that.

5. **Impact of ASHRAE 90.1 Standard Changes** - ASHRAE recently released an update on its benchmark energy efficiency standard, ANSI/ASHRAE/IES Standard 90.1-2022 – Energy Standard for Sites and Buildings Except Low-Rise Residential Buildings. The latest version includes an expanded scope for building sites and major additions for the first time in a minimum-efficiency U.S. model energy standard or code. Impact of ASHRAE 90.1 Standard Changes - Facility Management Energy Efficiency Quick Read (facilitiesnet.com)

6. **Horticultural Lighting to Fight Pests** - An area of growing research and practice is using lighting to help control agricultural pests. This can include horticultural lighting in indoor growing facilities (aka controlled environment agriculture or CEA) or nighttime treatment with specific wavelengths on outdoor crops. Greenhouse growers have long known that introducing supplemental grow lights to greenhouses can dramatically change the types and severity of pests. It's possible for indoor growers to consider lighting impacts to increase the effectiveness of fighting pests. Integrated Pest Management (IPM) is a holistic approach to managing pests that combines multiple methods and strategies, including cultural, physical, biological, and chemical methods. **Lighting can impact biocontrols through photoperiod, intensity, and disease control**. Horticultural Lighting To Fight Pests (lightnowblog.com)

7. **GE to Invest Over $450 Million in U.S. Manufacturing in 2023** - GE announced plans to invest more than $450 million in its existing U.S. manufacturing facilities this year, purchasing cutting-edge equipment and making upgrades to position the company and its U.S. workforce for a strong future in advance of the company's planned creation of two independent, industry-leading companies in energy and aerospace. GE Vernova, GE's portfolio of energy businesses, expects to make investments this year – including capacity upgrades, facility maintenance, and equipment and tool management – to bolster its efforts in driving the energy transition and accelerating the path to reliable, affordable, and sustainable energy. GE currently employs more than 45,000 employees and operates 58 manufacturing facilities in the U.S. GE to Invest Over $450 Million in U.S. Manufacturing in 2023 – tEDmag

8. **RESEARCH: CLTC Researches Smart & Clean Exterior Lighting for the Community** - Researchers at the California Lighting Technology Center are addressing the integration and demonstration of exterior lighting systems with on-board solar generation, battery storage, and advanced controls with funding provided by the California Energy Commission's EPIC program. In other words, "smart and clean" exterior lighting systems. The research emphasizes how to best leverage mature, demand-side technologies to create a fully integrated, easy-to-install, low-maintenance system that reduces strain on California's electricity grid. Lighting design practices used with this research prioritize engagement with residents and business owners through local community studies and technology demonstrations in priority communities. Pursuing an inclusive, community-focused relighting strategy can increase safety and use of outdoor areas. Read CLTC's March 2023 LD+A Research article AT: LD+A Research Matters: Smart & Clean Exterior Lighting for the Community | California Lighting Technology Center (ucdavis.edu)

9. **LEDVANCE Introduces Phase EV Charging Stations** - LEDVANCE LLC announced its LEDVANCE PHASE EV™ Level 2 Commercial Charging Stations in the U.S. With powerful software integration from AmpUp, LEDVANCE PHASE EV combines performance and value to deliver fast charging at an affordable price. Perfect for facility managers of office, multi-residential, retail, education, hospitality, and other business locations, LEDVANCE PHASE EV is offered in wall mounted units or a free-standing pedestal where two units can be mounted side-by-side or back-to-back. There are three colors to choose from (orange, gray & white), and custom branding is available on the pedestal. The stylish unit has a large LCD screen with a color changing bar that shows the charging status. Ledvance Introduces Phase EV Charging Stations (facilityexecutive.com)

10. **Rexel Energy Solutions Awarded U.S. Postal Service Contract for the Supply of Electric Vehicle Charging Stations** - Rexel Energy Solutions (RES), a Rexel USA business unit, has been awarded a threeyear contract with the U.S. Postal Service for the supply of electric vehicle (EV) charging stations to be deployed at Postal Service facilities. The three-year contract includes two additional options of two-years each, and a potential maximum of 41,500 stations which can be ordered during the contracts period of performance. As one of the country's leading distributors of EV charging products and services, as well as energy optimization and electrification programs and solutions, RES is prepared to apply its technical expertise, industry foresight, and distribution experience for successful program deployment. Rexel Energy Solutions - Rexel Energy Solutions | Energizing the ESCO World

12. **Electrical Contractor's LIGHTING PICKS** - EC Mag - Electrical Contractor Magazine
New Life for Tax Deduction: Lighting's role in the expanded CBTD by Craig DiLouie Passed in August 2022, the Inflation Reduction Act (IRA) expanded the Commercial Buildings Tax Deduction (CBTD), increasing the scope of qualifying projects, allowing it to be claimed multiple times and increasing the potential value of the energy-efficiency incentive.
Raising the Bar Again on Light Bulb Efficiency by Rick Laezman For the better part of two decades, light bulbs have been traveling an escalating trajectory of greater efficiency. The Biden-Harris administration wants to help them take the next step.
New Ideas in the Spotlight: Innovation and options in commercial lighting are on the rise by Claire Swedberg Lighting controls, sustainability, illumination quality and circadian health have been considerations in the past decade for commercial lighting systems. Other challenges have emerged, including supply chain delays, a preference for domestically made products and rising costs.

13. **Electrical Wholesaling's Top 5 LED Picks for March 2023** - Congratulations to the product managers and marketing teams at Earthtronics, LEDVANCE, Leviton, Optique Lighting and SATCO for having their products selected as Electrical Wholesaling's Top 5 lighting picks for March, 2023.Interested in having your company's lighting product selected as a Top 5 LED Lighting pick? Send a brief description (100 words or less) and high-resolution photo (300 dpi or better) to Jim Lucy, editor-in-chief, of Electrical Wholesaling magazine at jlucy@endeavorb2b.com
Electrical Wholesaling's Top 5 LED Picks for March, 2023 | Electrical Wholesaling (ewweb.com)

14. **RESEARCH: DLC Study Documents Non-Energy Benefits of Networked Lighting Controls** - The DLC recently published a summary of research conducted by Skumatz Economic Research Associates, Inc. (SERA), which identified non-energy benefits (NEBs) of networked lighting controls and developed a methodology for quantifying them. The study estimated that the non-energy benefits can deliver a return on investment more than double than that resulting from the energy savings alone. Additionally, a net increase in self-reported productivity of nearly 8% was estimated for each occupant in workspaces where networked controls were operating. A DLC summary at: Evaluating the Non-Energy Benefits of Advanced Networked Lighting Controls - DesignLights

15. **Tips and Tricks for Searching the DLC QPLs** - The DesignLights Consortium's (DLC) Qualified Products Lists (QPL) provide a wealth of third-party verified information on over 250,000 high performing solid-state lighting products, almost 1,200 horticultural LEDs, nearly 50 LUNA (for responsible light at night) products , and 61 networked lighting control systems. Using the QPLs enables lighting decision makers to shorten and simplify the process of finding products that save energy and qualify for rebate programs while meeting the needs of a variety of non-residential lighting applications. Streamlining the product selection process further, the QPLs enable users to add information on various products to a list that can then be downloaded and compared in Excel. All that's needed is a free MyDLC account, which takes just a minute to set up. Check out the DLC's how-to video (https://www.designlights.org/news-events/events/tips-for-searching-the-dlc-qualified-products-lists/)

16. **LEDs Magazine's Bimonthly UV Tech Insights: UV-C LED for Disinfection** - The COVID-19 pandemic kicked off a frenzy of sorts in the disinfection marketplace. Many assumed that recent and massive performance boosts in white-light LEDs for general illumination would translate to the UV-C LED space. Lighting manufacturers embraced the ultraviolet application. Analysts predicted multibillion-dollar markets with double-digit CAGRs. Unfortunately, that extraordinary growth has not immediately materialized. With technical advances and commercial deployments underway, now is an opportune time to revisit the disinfection market to better understand UV-C LED progress to date and future projections. March 16, 2023 issue:

- Has germicidal UV-C LED technology hit an impasse? Experts say no
- UV-C LEDs enable new frontiers in water quality monitoring
- Reconsider UV-C LED lifetime for disinfection based on development decisions
- UV-VIS spectroradiometer performs measurements in less than 7 seconds
- Nichia launches significantly improved UV-C LED
- SLOT 6 from Mark Architectural Lighting inactivates pathogens in occupied spaces
- Ebook: Lighting the Way Toward a Cleaner Future
- Changing the face of cancer treatment with light-controlled drugs

17. **2023 Rebate Outlook by Craig DiLouie** - In 2023, commercial lighting rebates remain a strong driver for adoption of energy-efficient lighting and controls in existing buildings. Notable trends include continuing stability in LED and control rebates, imminent jeopardy for some LED replacement lamp rebates, and growth for networked lighting control and horticultural rebates. A coinciding trend with implications for lighting upgrades is introduction of substantial rebates for electric vehicle (EV) charging stations. Utilities and energy efficiency organizations offer rebates as an investment in reducing electric demand, thereby avoiding the higher cost of acquiring new generating capacity. These rebates focus heavily on lighting and are primarily targeted to existing buildings. According to rebate fulfillment provider BriteSwitch, which shared its 2023 North American rebate database, nearly 80% of the United States is covered by an active commercial lighting rebate, with the strongest programs in the Northeast and Northwest. Click here to check them out!

18. **DLC Seeks Projects for Pilot Opportunity** - Small and medium-sized buildings make up a large portion of the building stock and provide a huge opportunity to capture additional energy savings. To help facilitate the adoption of lighting controls in these buildings, the DLC is developing a new program, and they're looking for a couple of lighting controls projects to pilot tools designed to streamline the project process. If you're interested in participating, please contact Jason Jeunnette.

19. **Avoiding White Light in the Greenhouse Can Push Down the Energy Bill** - LED lighting might consume less energy compared to conventional sources, but it's not "no energy." That can be a deterrent for any user considering installing lights where there are none, especially with high electricity rates. Nowhere is this truer than in horticultural greenhouse lighting, a sector where buying appears to have slowed as growers who not long ago might have spent on LEDs as supplemental photonic nourishment are instead continuing to rely purely on the sun. But now Signify notes that energy consumption will dip noticeably if the greenhouse operator minimizes white LED light, which the company points out is more energy intensive than the red and blue spectra. As an extra incentive to switch off white, the Dutch company further points out that many crops grow better when not exposed to white. Avoiding white light in the greenhouse can push down the energy bill | LEDs Magazine

20. **NEMA Launches Interactive Energy Transition Map** - The world is electrifying. Over the next decade, the U.S. government will invest hundreds of billions of dollars in an electrified, more resilient, sustainable, decarbonized, and connected energy system. The National Electrical Manufacturers Association (NEMA) under its Energy Transition Campaign has launched an interactive map of the new electrified energy system. Electrical systems are the backbone of this new electrified energy future. The electroindustry is the behind-the-scenes powerhouse that makes modern life possible, from smart lighting to connected electrified vehicles to solar energy generation. NEMA Electrification Infographic – Electrification Infographic

21. **California Repeal of Portable Luminaires** - Portable luminaires include products like table lamps and desk lamps. The California Energy Commission (CEC) proposes to repeal standards for this appliance type relating to definitions and testing, marking, certification, and energy performance requirements. Because of changes in the lighting market, the standards are no longer beneficial. Repeal of Portable Luminaires (ca.gov)

22. **Indoor Growers Fight Pests and Diseases with LED Lighting** - Chris Brown, Chairman, CEO, and Founder of Ultra Yield Solutions, advises CEA operators, "Look for a lighting partner with future-focused expertise to guide you as you consider lighting and controls options." Lighting can impact biocontrols in three ways: photoperiod, intensity, and spectrum:
Photoperiod - Insects under stress often go dormant in a process known as diapause, most typically in winter. Hours of light per day (photoperiod) are one of the most potent triggers of diapause. Supplemental lighting can extend the photoperiod for biocontrols and keep biocontrol species active in fighting pests through the winter. This strategy is "breaking diapause" for biocontrols.
Light intensity - Some biocontrol parasites/predators become more effective with increased light intensity and photoperiods. The increased intensity makes these biocontrols better at controlling pests. Research has also shown that increased light intensity can make blue and yellow sticky traps more effective at trapping specific pests.
Spectrum - Different wavelengths of light have been shown effective at fighting certain plant diseases. For example, red light suppresses downy mildew in basil and improves plant growth. The red light treatment is done at night to prevent spore spread. Indoor growers fight pests and diseases with LED lighting - LEDinside

23. **Cree LED Delivers Industry-Leading High-Power LED Efficacy** - Cree LED, an SGH company, announced today the release of its J Series® 5050C E Class LEDs with the industry's highest efficacy for high power LEDs: 228 lumens per watt (LPW) typical at 4000K, 70 CRI and 1W. The new J Series LEDs deliver up to three times the light output of competing 5050 LEDs at the same efficacy level. These advanced LEDs are also designed with superior corrosion resistance for the most challenging environments. Cree LED Delivers Industry-Leading High-Power LED Efficacy with New J Series 5050C E Class LEDs - LEDinside

24. **New Ultraviolet Lighting from TCP Kills Germs, Recirculates Fresh Air** - TCP's cutting-edge line of eco-friendly lamps and luminaires harnesses the germ-killing power of ultraviolet light to safely eliminate bacteria and viruses, then recirculates fresher, cleaner air in homes, workplaces and retail spaces. Three convenient and user-friendly products make up the TCP PurEssentials line: Purifying Downlights, Purifying Panels and Purifying A19s. Each PurEssentials lamp or luminaire utilizes a fan to circulate air, sweeping it across a fully enclosed ultraviolet (UVC) light, which effectively kills a host of airborne bacteria and viruses. The purified air is then recycled into the room. New Ultraviolet Lighting from TCP Kills Germs, Recirculates Fresh Air - LEDinside

25. **New York Is Poised to Become the First State to Pass a Law Banning Natural Gas in New Buildings** - The measure is on track to be added to the state's budget, which is due to be completed this week. Democratic Gov. Kathy Hochul in January pitched an all-electric building mandate in her spending plan, and both chambers of the Democratic-controlled state legislature outlined similar plans. The proposed gas-stove ban faces opposition from some Republicans, labor unions, gas companies and business groups, which cite concerns including affordability and reliability. Environmental groups cheered the efforts. Democrats are still hammering out final details, lawmakers said. A recent Siena College Poll found 53% of all New Yorkers, and 71% of upstate residents, said they opposed the idea. New York Poised to Ban Gas Stoves in New Buildings as Part of All-Electric Mandate - WSJ

Global LED Energy Market Observer:

26. **RESEARCH: LED Lighting Market Size Projections to 2030** - According to a new study by Straits Research, the global LED lighting market size was valued at USD 55 billion in 2021. It is projected to reach USD 130.75 billion by 2030, growing at a CAGR of 10.1% during the forecast period (2022-2030). Asia-Pacific Dominates the Global Market. Asia-Pacific is the most significant global LED lighting market shareholder and is expected to grow at a CAGR of 14.6% during the forecast period. The need for LED lighting is predicted to rise due to new residential, commercial, and industrial structures. Additionally, it is projected that government bans on incandescent lighting and other incentive programs to promote the use of LED lighting would create new growth prospects for LED lighting makers. Many countries have initiated sizable lighting projects to solve energy and environmental issues and are focusing on creating incentives and rebate programs. Get a free sample copy of this report at: https://straitsresearch.com/report/led-lighting-market/request-sample
LED Lighting Market Size Projections to 2030 – lightED (lightedmag.com)

27. **STUDY: LED Display Market to Surpass US $56.0 Billion by 2033** - The global Direct View Light Emitting Diode (LED) Display Market is forecast to reach US$ 13.0 billion in 2023. In a market study by Persistence Market Research, for the next ten years, the worldwide market will expand at 15.8% CAGR. Global sales of direct view light emitting diode (LED) displays are likely to total US$ 56.0 billion by 2033. Demand for direct view light emitting diode displays is forecast to remain high in indoor applications. The target segment will progress at 15.6% CAGR between 2023 and 2033. Growing applications of direct view LED displays in public facilities such as airports, houses of worship, and tourist spots is driving the global market forward. Similarly, increasing usage in cinema, workplaces, conference rooms, and commercial real estate buildings for showing construction will boost direct view light emitting diode display sales. Further, widening applications in digital advertising is likely to boost the global market. To get free sample copy of this report: https://www.persistencemarketresearch.com/samples/33367

28. **RESEARCH: Solar Lights Market to Reach $14.2 Billion by 2031** - Allied Market Research published a report, titled, "Solar Lights Market by Type (Outdoor Solar Lights, Indoor Solar Lights), by Panel Type (Polycrystalline, Monocrystalline, Amorphous), by Solar Power Systems (Off-Grid, On-Grid, Hybrid), by Application (Highways and Roadways, Residential, Commercial and Industrial, Others): Global Opportunity Analysis and Industry Forecast, 2021-2031." According to report, the global solar lights industry generated $8.1 billion in 2021, and is anticipated to generate $14.2 billion by 2031, witnessing a CAGR of 6.2% from 2022 to 2031. Request PDF Brochure: https://www.alliedmarketresearch.com/request-sample/47922

29. **Attention, End Users: Europe Is Banning Fluorescent Lighting** - Many lighting users in Europe might not be fully aware of it, but by the end of August, the EU will have banned most fluorescent light sources. That means — among other ramifications — that as countless millions of commercial tubes run their lifetime, the replacement choice will be LED products. The fluorescent freeze-out could bring a revenue boon for LED vendors lasting several years. Ongoing use of fluorescent will not be illegal, but the sale of new general illumination tubes and lamps will be. The ban falls under a European Union directive known as RoHS, which stands for Restriction of Hazardous Substances in Electrical and Electronic Equipment. Attention, end users: Europe is banning fluorescent lighting | LEDs Magazine

30. **RESEARCH: Global Lighting Control Market to Grow to $70 Billion by 2030** - The Global Lighting Control Market Size is to Grow from USD 20 billion in 2021 to USD 70 billion by 2030, at a compound annual growth rate (CAGR) of 17% during the forecast period, according to a new survey by Spherical Insights. The increasing adoption of lighting control by different industries such as residential, industrial, commercial, public places, architectural sites, highways & roadways, and others is the key driving factor. Sample PDF Brochure: https://www.sphericalinsights.com/request-sample/1562 The lighting control system, also known as smart lighting, is a clever and electronic system that enables control solutions that integrate transmission centrally through multiple inputs and outputs using the primary modem. The lighting control market is encountering exponential growth, owing primarily to increased functionality, energy efficiency goals, and LED lighting adoption. Global Lighting Control Market to Grow to $70 Billion by 2030 – lightED (lightedmag.com)

31. **RESEARCH: Solar Street Light Market to Grow at CAGR 11.4% from 2022-2030** - The Global Solar Power LED Street Light Market is projected to grow at a CAGR of 11.4% during the forecast period 2022-2030, according to a market research study published by Contrive Datum Insights. For the market to grow, there must be strict rules and policies about saving energy, and the government must invest in building roads and motorways around cities to reduce traffic congestion. The growth is also due to the fact that the prices of solar energy products like solar panels have gone down. North America is expected to have a certain share of the market, and its global solar LED street lighting market is expected to grow in the next few years because it keeps investing in the development of renewable energy sources. Over the next few years, the solar street lighting market is expected to grow a lot in the Asia-Pacific and Middle East and Africa regions. Solar Street Light Market to Grow at CAGR 11.4% From 2022-2030 – lightED (lightedmag.com)

32. **Advances in MicroLEDs for Automotive Apps** - LEDs are a popular choice in the automotive industry for functional and aesthetic purposes. There are several demands that need to be addressed, such as size, light output, thermal management, efficiency, and long-term performance. There can be more efficient interior lighting, using enhanced light management features.AUO has automotive display market share of 18 percent for center stack displays. AUO offers several microLED displays. Advantages include free form that enables new format of displays or seamless design, sunlight readable, wide viewing angle, best durability with inorganic materials, high transmittance, and vivid colors. MicroLEDs perform the largest viewing angle without brightness decade and color shift. ALED is the ultimate automotive display from AUO. Features include high-brightness, long life, best optics and transparency. Advances in microLEDs for automotive apps - LEDinside

33. **Tomato? Tomahto? Let's Call the Whole Thing On Aboard the Space Station** - ISS staff have been tending to the Red Robin dwarf tomatoes which seem to have come on abundantly since the crew began preparing to grow them in early December. The new batch marks the first time that NASA has raised tomatoes for picking and eating on the spacecraft's Veggie system, which is the longest running of at least three different horticultural facilities the agency runs on the craft. The dwarf tomatoes mark the fifth stage of the Veggie system under the project, known as Veg-05. Earlier stages have included romaine lettuce, zinnia flowers, mizuna, pak choi, and other crops. Veggie is the oldest of at least three LED-lit horticultural chambers on the craft. It is an open chamber from which astronauts can snip or pick produce. It germinates plants in pillows which sometimes contain a soil substrate and also contain water and fertilizer. LED horticulture should continue to get pride of place on the astronauts to-do list, as it is the means by which people will most likely eat in future space travel and colonization. Tomato? Tomahto? Let's call the whole thing on aboard the Space Station | LEDs Magazine

34. **NEMA and Orgalim Sign Memorandum of Understanding** - The National Electrical Manufacturers Association (NEMA), the leading trade association of the electrical manufacturing industry in the United States, and Orgalim, the association representing Europe's technology industries, announced today that they have signed a Memorandum of Understanding (MoU) to deepen their coordination in promoting the shared interests of their respective members in the United States and Europe. At this pivotal moment of economy-wide electrification in both the U.S. and Europe amid a global competitive and geopolitical realignment, this agreement will strengthen efforts in both markets to promote emerging technologies, renewables, energy and material efficiency, international standards and conformity assessment, and market access. press@nema.org

35. **Fluence: LEDs Reduce Disease in the Greenhouse** - They also optimize carbon dioxide compared to HPS lighting. It's all related to the stable heat environment. Growers who deploy LED lighting rather than conventional high-pressure sodium (HPS) in the greenhouse lower the risk that their plants will succumb to pathogens, because the LEDs provide a more stable heat environment, according to LED lighting vendor Fluence. As LEDs Magazine has reported often, heat from HPS can be beneficial, and some growers who install LEDs intentionally mix them with HPS in order to maintain warmer growing temperatures, although the approaches can vary; and sometimes growers indeed use LEDs to moderate heat. Dutch tomato propagator WPK, a Fluence customer, uses a mix of LEDs and HPS in this greenhouse. But Fluence argued that the hybrid approach ultimately falls short both in lighting and heating performance, and thus heat control should be left to HVAC systems. Fluence: LEDs reduce disease in the greenhouse | LEDs Magazine

Monthly Feature: Commercial Lighting Rebate Trends for 2023

Ban the (Fluorescent) Bulb? Governments are Taking Steps to Remove CFLs from the Market by Craig DiLouie Ban the (Fluorescent) Bulb? Governments are taking steps to remove CFLs from the market - Electrical Contractor Magazine (ecmag.com)

In September 2022, California banned the sale and distribution of fluorescent lamps over the next few years. In doing so, California joined Vermont, the European Union and soon, possibly, Canada and the United Kingdom. Typically, when governments have wanted to shift the market toward more energy-efficient lighting, they have done so by enacting energy standards affecting manufacture and import. In December 2022, the U.S. Department of Energy (DOE), for example, proposed new energy standards for general-service lamps expected to eliminate the majority of medium-base compact fluorescent lamps (CFLs) from the market by the end of the decade.

In the case of Vermont and California, however, sale and distribution are prohibited, and the reason isn't just energy; it's about the mercury, a strong and persistent heavy metal toxic to humans and the environment. In 2013, the Minamata Convention called for measures to reduce mercury use, which included a phase-out and reduction in mercury use in various products such as fluorescent lamps. Currently, 137 countries have signed on to the convention, which calls for the phase-out of CFLs by 2025. The Clean Lighting Coalition has called on the Biden administration to ban fluorescent lamps by 2025.

Fluorescent lamps contain a small amount of mercury, but it adds up. According to a March 2022 report by the Clean Lighting Coalition, eliminating fluorescent lighting would prevent lamps containing 8 tons of mercury from being sold and installed through 2050. Converting all fluorescent lighting to more-efficient LEDs would also reduce airborne mercury emissions from coal-fired power plants to the tune of 966 pounds through 2050, according to the report. In December 2021, the European Union revised its Restriction of the Use of Hazardous Substances policy that is expected to effectively phase out nearly all fluorescent lamps by September 2023. In January 2023, the United Kingdom proposed energy standards that would eliminate many linear and compact fluorescent lamps, as well as HID and halogen lamps.

At the end of 2022, Canada's environmental and health departments proposed amendments to the 1999 Canadian Environmental Protection Act that would prohibit manufacture/import on Dec. 31, 2023, and sales on Dec. 31, 2026, for linear fluorescent, various CFL, induction fluorescent, metal halide and other lamps. Another rule would prohibit manufacture/import in 2028 and sales in 2031 for certain high-pressure sodium and horticultural fluorescent lamps. In the United States, in February 2022, Vermont's Department of Environmental Conservation issued a determination eliminating the sale, offering for sale and delivery to a retailer for sale of screw-base CFLs. The rule was set to go into effect in February 2023. In May 2022, the state followed up with legislation banning the sale of 4-foot linear fluorescent lamps, effective Jan. 1, 202

In September 2022, California joined Vermont by banning the sale and distribution of CFLs and linear fluorescent lamps, going further by eliminating linear fluorescent lamps up to 8 feet in length. Screw and bayonet-base CFLs are prohibited starting Jan. 1, 2024, and pin-based starting Jan. 1, 2025. Linear fluorescent lamps—from ½ to 8 feet, two end caps with any base types, and all diameters and shapes—are prohibited starting Jan. 1, 2025. Various lamps are exempted, including those used for image capture and projection, disinfection, tanning and other specialized uses.

At the federal level, the DOE recently proposed new energy standards that would eliminate many CFLs. These bans and standards will hasten what the market is already accomplishing. The National Electrical Manufacturers Association (NEMA) estimates that, of member general-service (linear) fluorescent lamp shipments provided to the DOE, shipments fell from roughly 400 million lamps in 2015 to roughly 60 million in 2022. DOE projected that by 2026, shipments would further decline to around 10 million lamps. Looking at CFLs, as of the first quarter of 2022, CFLs held only 0.7% of the A-line consumer market, according to NEMA's Lamp Indices.

LEDs to the rescue.....So if fluorescent lamps are banned in a jurisdiction, what is the alternative? The obvious answer is LED, which is roughly twice as energy-efficient and offers a longer service life. LED technology is steadily displacing fluorescent, eliminating embodied mercury while presenting significant energy and carbon savings. In the consumer A-line market, for example, LED lamps are fairly dominant, holding an 80% share, according to NEMA. In commercial buildings needing to upgrade to LED, owners would have a choice of installing retrofit lamps or new luminaires. Overall, these bans are a sign of the times as the world of lighting continues to shift to LED, hastened by government action that considers not just dollars and cents, but the environmental effect.