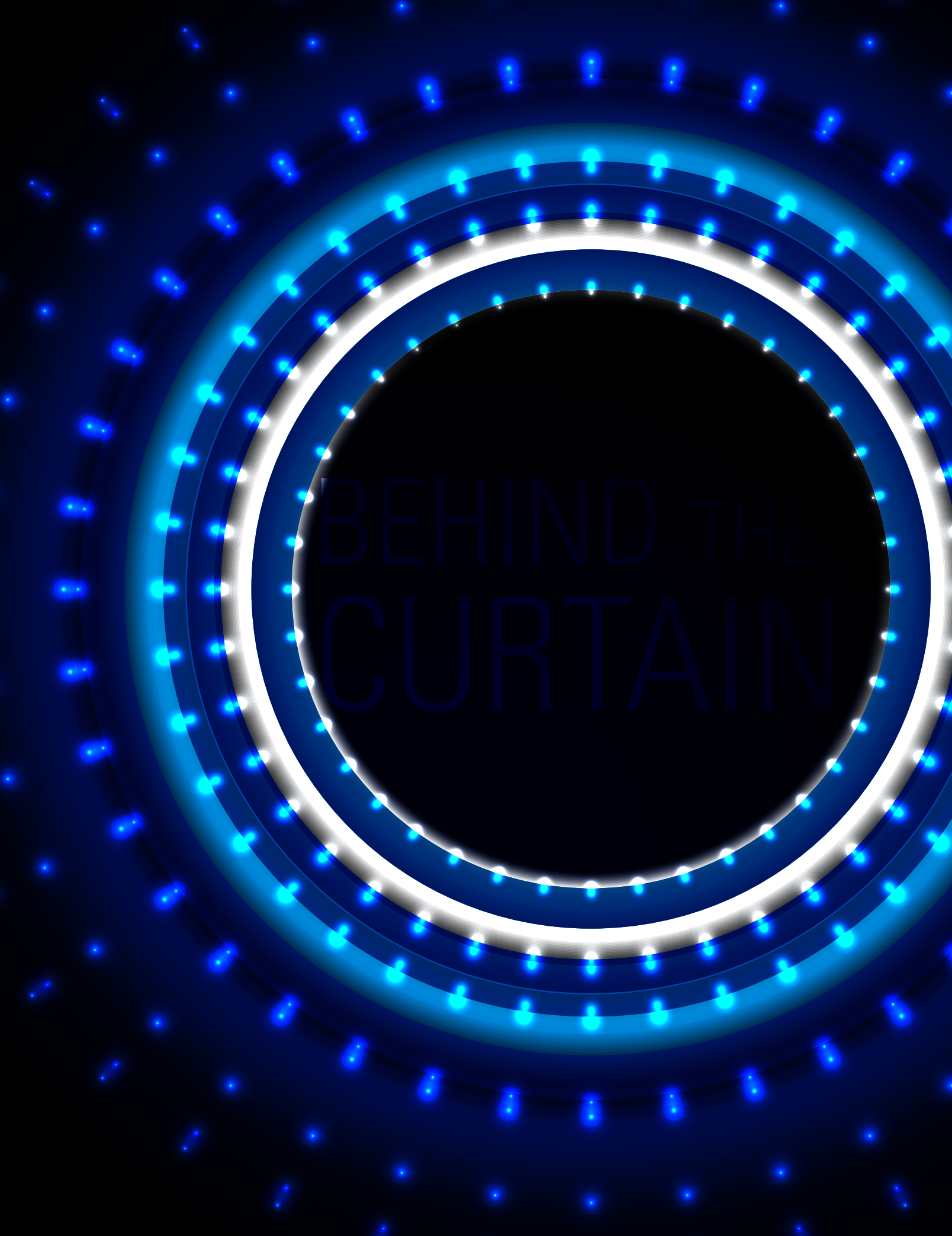
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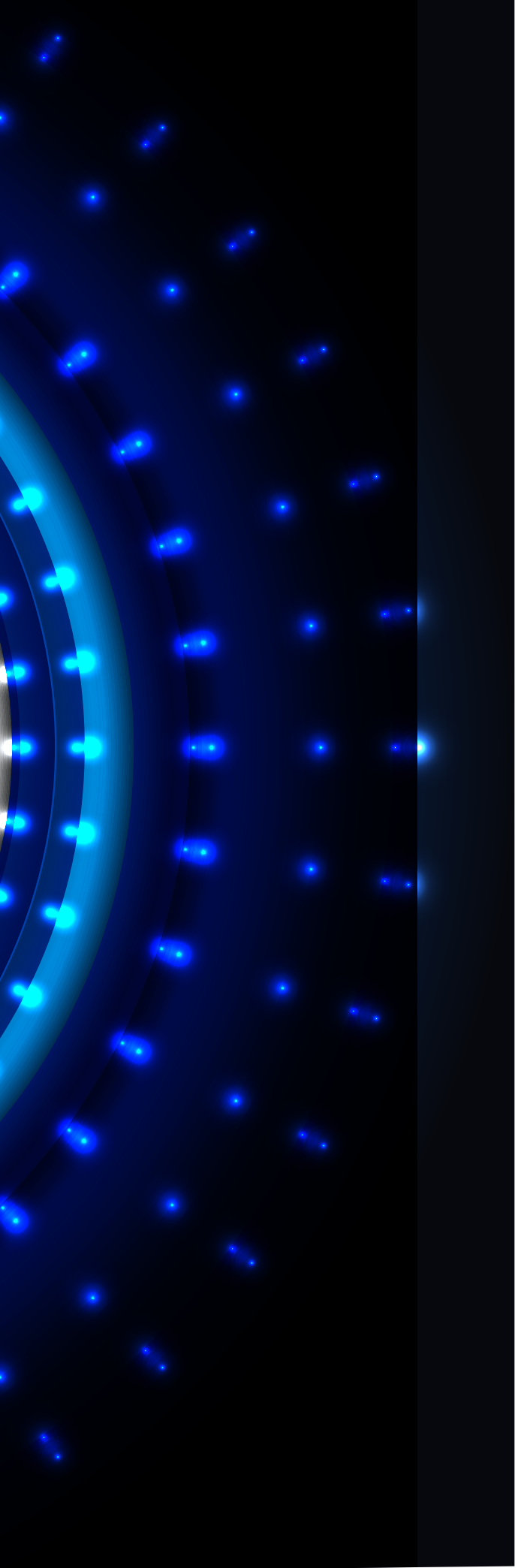


What to learn to become your organization's lighting wizard.

By Jeff Pinyot

Substitute LED for Oz in a memorable movie quote and you get this bold statement: "Do not arouse the wrath of the great and powerful LED. I said come back tomorrow." This begs the question: is light emitting diode (LED) technology ready today, or do we, as the wizard said, have to come back later for a product worthy of today's parking garage?

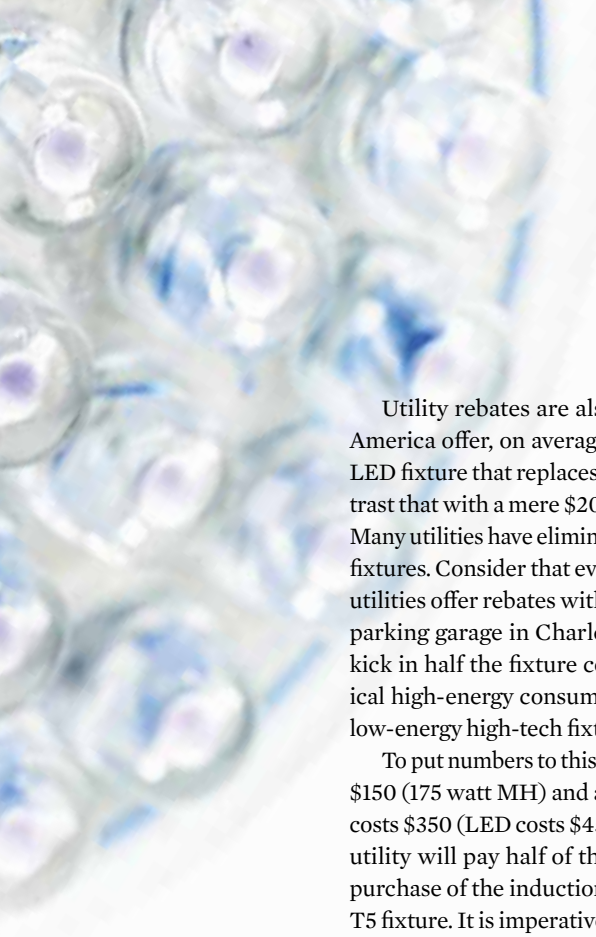
Unless you are like Rip Van Winkle awakening from a 20-year slumber, there's no question among parking professionals that the garage lighting field has changed. Out with the lamps of metal halide and high pressure sodium, and out with their annoying buzzing ballasts that were a constant reminder of money going down the drain.

Smart designers, owners, and operators are using low energy and longer life solutions such as T8/T5 linear fluorescents, domestic induction, or LED.

There is no question that linear fluorescent lighting, when installed and used properly, can illuminate a parking garage satisfactorily, but note the word, "satisfactorily." It is a solution—albeit a low-cost one—that will make you a quick hero when the next electric bill shows up. There are other solutions that will also bestow the hero crown on you when the electric bill shows up, but still provide great illumination and unbelievable maintenance savings. Begin to draw the curtain exposing Oz, and you start to learn why other lighting technologies are gaining momentum and winning the lighting battle.

Winners

Domestic induction and LED are regularly winning the return on investment (ROI) battle against T8 and T5 linear fluorescents. Super-long lamp life, low-cost installation (that can re-use existing pendants), great warranties, excellent performance, and low-maintenance designs are all reasons for the victory.



Utility rebates are also a factor, as utilities across America offer, on average, $100 for each induction or LED fixture that replaces an existing HID fixture. Contrast that with a mere $20 to $30 for T8 or T5 solutions. Many utilities have eliminated incentives for flourescent fixtures. Consider that even on new construction, some utilities offer rebates with no upper limits. Build a new parking garage in Charlotte, N.C., and the utility will kick in half the fixture cost difference between a typical high-energy consuming HID fixture and that of a low-energy high-tech fixture such as induction or LED.

To put numbers to this, say a typical HID fixture costs $150 (175 watt MH) and a domestic induction solution costs $350 (LED costs $450 and up for a good one). The utility will pay half of the $200 spread to help in the purchase of the induction, and no money for the T8 or T5 fixture. It is imperative to consider utility incentives before choosing one technology over another.

A recent east coast induction project was awarded 50 percent of the installed induction lighting cost by the local utility. The utility awarded more than $100,000 to the owner for choosing wisely. Had the owner selected T8 or T5 fluorescents, they would have received a rebate of just more than $16,500—a pittance of the induction rebate—making the domestic induction bid lower first cost than fluorescent.

The Rule

Here is the mantra that will always be true: Don't pick a lighting technology. Pick a lighting company that you can trust. Pick a company that has experience in a variety of lighting technologies so you know which solution is best for your parking garage. If you have a poured slab garage in Phoenix that has ceiling-mounted fixtures and a highly-reflective ceiling, why assume the same fixture or technology would work on a deep and dark double-T pattern in St. Louis? Leave that up to the pros and leave it up to a company that has done it before and has a long list of references.

A client recently told me it would be just as foolish for him to ask my opinion on parking rates as it would be for him to tell me what technology lighting fixture to use in his garage. If all a company sells is induction, guess what they'll suggest. One size does not fit all.

Induction and LED offer very similar performance. Some will vehemently argue against that statement, but it is true. Yes, LED is the most efficient distributor of light, but, look at many LED-lighted parking garages at night and you might think they are closed for business. The pavement is well-lighted, but the walls, vehicles, and ceilings are dark. An LED that is designed to perform like the HID it is replacing is key to having a happy client. Single-directional LED fixtures can deliver more lumens per watt to the floor than induction, but to get the much-needed uplighting and vertical lumens, you need to refract the source and make it omnidirectional.

Here is a rule of thumb that takes you way past the curtain and deep into Oz: Every time you redirect lighting, you lose about 10 percent performance. What does that mean? Use LED as an example. We all know LED has a tendency to be glarey. To reduce glare, you can bend the LED with an acrylic cap at the source, (a TIR), you can refract it externally, and then finally, you can distress or color the refractor to further reduce glare. Each of these manipulations has a performance penalty associated to it. If a manufacturer of an LED fixture claims 90 percent delivered lumens but addresses glare three times, you have to wonder. Every fixture manufacturer has the same access to the same LEDs with the same starting performance, and there is no room for fudge here.

LED has a great future and the lighting world is bullish on it. We like to call LED Lindsey Lumen, because there is more press covering LED than what really happened in Benghazi.

Educate Yourself

The key to a good LED purchase is to know what you are buying and how it is rated. Look to see if the fixture manufacturer is overdriving the LEDs and operating hot for maximum output, which is a cost-saving trick with negative consequences. Are the individual LEDs quickly upgradable and at a low cost to take advantage of technology improvements going forward or is the fixture you are considering purchasing actually disposable at end-of-life? Does the fixture do well lighting the floor but not illuminate the other important parts of the garage such as cars, walls, and ceilings? Know what you are buying and make sure you are comparing apples to apples.

I recently saw a popular LED fixture manufacturer use the enhanced performance of 5,500k LEDs in the 5,000k output schedule of their fixture, but footnote a +/- 10 percent performance. This is a well-documented trick that is nearly impossible to expose unless you interrogate the Illuminating Engineering Society (IES) files of the fixture manufacturer. A trick like that should eliminate that company. Caveat emptor!

Further Down the Yellow Brick Road

In the induction world, one must be wise to the guts of a fixture and its origin. If they could talk, what language would your lamp and ballast speak? Do you need an interpreter? A great rule of thumb when a fixture manufacturer quotes an induction or LED fixture is to see if he proudly identifies the brand name of the lamp, ballast, or driver components the company uses. Some recognizable induction fixture manufacturers (and importers) that serve the parking industry do not identify whose lamps and ballasts they are using on product data and submittal sheets. Would you buy a new car without knowing what engine will power it?

Recently, an Indiana university took delivery of a domestic induction solution for the relighting of their deck (or so they thought). Only after the fixtures were installed did they realize that the supplier used fixtures with Chinese lamps and ballasts instead of the domestic solution that met the campus spec.

Because LED is changing so fast, do yourself a favor: see that the fixture you select, whether induction or LED, is able to be upgraded in place at a reasonable cost as LED performance improves. Also ensure that your fixture of choice can be field modified from one technology to another as lighting technologies improve and develop.

Finally, do a demo. Just as you drive a car before signing on the dotted line, try out a fixture. If the lighting manufacturer or supplier you are working with won't accommodate a cost-effective or free lighting demo, pick a new company.

"Therefore, by virtue of the authority vested in me ... I hereby confer upon you the honorary degree of Th.D.: Doctor of Thinkology." Welcome to Lighting Oz!

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