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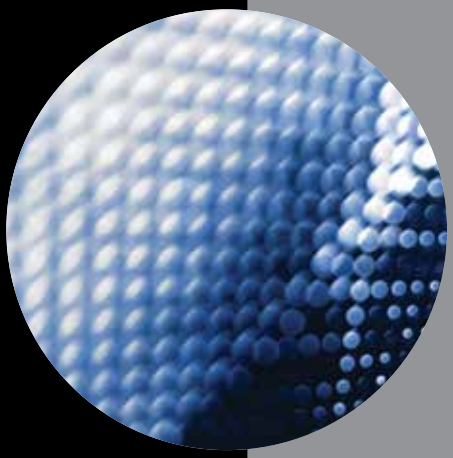
Lights, Controls, Action… Reaction.

How an advanced lighting solution provided pandemic resiliency to a major institution.

The Story

Pulling the trigger on a full lighting system upgrade is never a casual decision. With continuous and rapid advancements in technology, it can be tempting to wait just a little longer, when the value proposition might be just that much more compelling.

For a major institutional client in Ottawa, a dated lighting system in its large and heavily used parkade was no longer meeting its needs. The existing high-pressure sodium lamps were delivering increasingly inconsistent lighting, and accelerating failure rates were driving up both maintenance costs and user complaints. High energy consumption was another major concern – not only because of the rising costs associated with it but because the client was determined to make all of its asset management strategies more sustainable.



Conversion to LED lighting was the obvious solution, but the pathway forward proved to be challenging.

Several different LED options were installed on a test basis, but some failed outright while others did not deliver on the key criteria of minimizing glare. Glare is an aesthetic consideration, but also an important safety issue in a parkade since it can distract drivers as they maneuver through an environment where they need to be highly alert to the presence of pedestrians. It was time for a fresh perspective and a wider range of options.

The client approached an energy solutions provider with leading-edge lighting expertise. After careful consideration of the client's needs and priorities, the energy solutions provider proposed a new range of LED options for testing in the parkade – with a relatively new-to-market candidate among them. While the new-to-market option came from a well-established supplier, with extensively tested and well-proven internal components, it also incorporated innovative and glare-reducing "waveform" technology. With its advanced optical engineering, this candidate very effectively delivered on the need to mitigate glare and to efficiently and evenly distribute light. Once the test installation was in place, its merits were obvious to the client project manager and other key decision-makers. But this option came at a significantly higher price point in terms of the initial capital investment.

The key to overcoming that hurdle lay in the automated dimming control capabilities that were embedded within this lighting solution.

They could generate higher cost savings by enabling the client to discontinue always-on lighting in the parkade, thus reducing energy use and extending the life of the hardware. But that in turn entailed overcoming a hesitancy based on a previous negative experience with lighting automation systems. Automation capabilities built into the parkade's previous lighting system had performed poorly and proved cumbersome for maintenance staff to manage, and as a result, had been commonly bypassed.

The energy services provider, however, demonstrated that the automation embedded in the recommended solution could be commissioned simply and operated seamlessly – and with the safeguard of a disablement option in the unlikely event, operational difficulties arose. With this assurance, the client was prepared to move forward with further assessment of this automated option – something it had not initially contemplated, but that had the potential to significantly change the pay-back analysis.

At this stage, the client took a broad and long view, and assessed the options on a total cost-of-ownership basis, incorporating expected maintenance savings as well as escalating energy savings over time as energy costs rise. Working from a detailed engineering review of the range of options provided by the energy solutions provider, the combination of waveform technology and embedded automation was shown to in fact represent a similar payback outcome to the alternatives.

Higher upfront capital costs were offset by the additional energy savings arising from the ability to dim lighting by half in unoccupied areas of the parkade.

Armed with this analysis, the client had a compelling and urgent business case to proceed since each passing month was another one during which significant cost savings were foregone. Implementation proceeded quickly and smoothly, and outcomes have met expectations for lighting quality, safety, reduced energy and maintenance costs. Today, glare is being minimized, and the new system is providing uniform horizontal and vertical illumination that best renders pedestrians and the space. The client has also leveraged the new system capabilities to further optimize lighting use and reduce their energy costs, by turning off lighting in peripheral areas of the parkade under daylight conditions when they receive sufficient natural lighting.

And by proceeding with this project when it did, the client also heightened its resiliency in the face of the COVID-19 pandemic. Like many other institutions and enterprises, it saw dramatically reduced customer volumes in much of 2020 and extending into 2021.

But having upgraded its system when and how it did, it has been able to align parkade energy use with actual occupancy and avoid what would otherwise have been significant energy wastage.

Does this story sound familiar?

Do you need help determining whether it's time for a full lighting upgrade, and with an objective assessment of options?

Contact Envari Energy Solutions to learn about our wide range of energy transformation services, including energy monitoring and automation and design and engineering services. **envari.com | 613.225.VARI**

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