tradeforce tech
Integrated Energy Solutions

Ontario Soccer Centre
CASE STUDY

LIGHTING
Cost Savings:
78%

ADVANCED ROOFTOP HVAC CONTROLS
Cost Savings:
45%

The Ontario Soccer Centre is the home for Ontario Soccer with 400,000 + members and the largest membership of all sports in Canada. The Soccer Centre is located in Vaughan, Ontario on Martin Grove Road. The Soccer Centre plays home for many local leagues along with provincial indoor soccer leagues, League One Ontario, and the Ontario Cup finals each year. Players range in age from children to seniors.

Challenge

The client needed to significantly reduce energy consumption in order to cost-effectively provide a well-lit, air-conditioned facility year-round . The existing lighting consisted of 112, four hundred-watt induction fixtures that were only providing 10FC on the field when 30FC was ideal, and 50FC is required for televised events. Further, the HVAC system was fed by four 25 ton packaged rooftop units (RTU's) that needed replacement plus an energy management system.

The project objectives were:

1. Reduce maintenance and operating expenses on both lighting and HVAC systems
2. Replace & upgrade the HVAC system
3. Increase light levels on the playing field

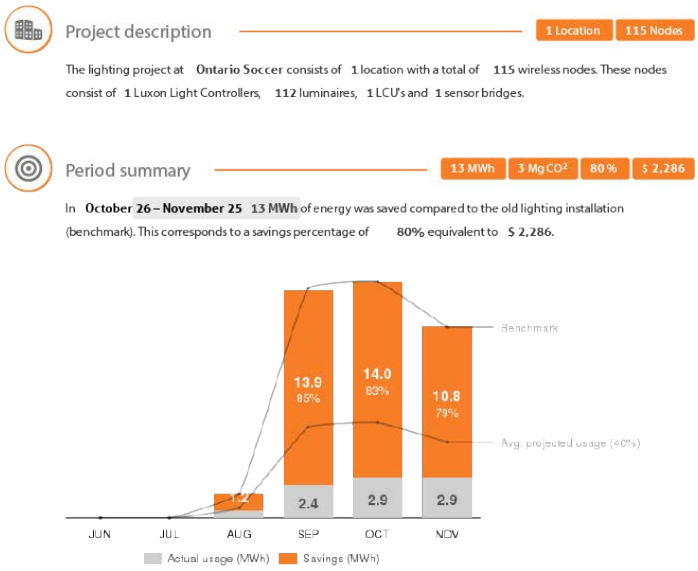
Over 30% of the induction fixtures had failed over the past four years, and the balance were severely depreciated. They needed to get these lights fixed or replaced before the busy season started but the original manufacturer and installer had gone out of business. The replacement of the 4 RTU's was required to be able to offer air conditioning in the summer months for their full-size indoor soccer field, and spring was in the air.

The Soccer Centre had applied for a Trillium grant for the upgrade of the facility and was awarded the grant to help with the project costs. **Tradeforce Tech** was awarded the project based on expertise in both LED lighting and HVAC system retrofits and controls and for offering the lowest total cost of ownership. The new Catalyst Advanced Rooftop Control System (ARC) combined with state of the art LED fixtures controlled by a wireless light management system provided maximum energy savings and a very compelling ROI.

Solution

Tradeforce Tech conducted a standard lighting audit, a detailed site inspection of the RTU's plus an analysis of the energy consumption patterns and operating hours. The LED system was designed using 315W LED fixtures to enable proper lighting for televised events and a wireless scheduling and dimming system to enable optimized light levels for different uses such as practices or after-hours maintenance.

The HVAC system was designed with four new 25-ton base model Carrier RTU's that were outfitted with the Catalyst ARC system. The Catalyst system uses sensors to automatically adjust the system operation based on the actual use of the space. Variables such as the number of occupants, outdoor and indoor air temperature plus set points are used to optimize comfort and energy consumption through control of fan speed, compressor run time and advanced economizer damper control driven by the fan speed and humidity sensor.



Results

From the time of the project being awarded to completion of the installation and commissioning ten weeks elapsed. Follow-up measurements of light levels showed that at 10% output the system was providing as much light as the old induction system, and at full power, it exceeds the 50FC required for televised events. Above is a summary report from the light management system.

Cool weather arrived early in the fall of 2018, so the full benefits of the Catalyst system are yet to be realized; however preliminary results are shown to be in line with the original projections. Linking the operation of the HVAC system to the varying facility schedule and providing advanced fault detection and diagnostics will ensure maximum energy savings and minimal service & repair costs for many years to come.

> *"**The Tradeforce Tech** team was great to work with and delivered exactly what had been discussed during the project development. The control systems for the LED lighting and HVAC have provided great insights into opportunities for energy consumption optimization and have been working flawlessly. We couldn't be happier with the results of this project, it was a great investment."*
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> **- Mike Giona,** General Manager