

Lighting the Way Forward: Energy-Efficient Lighting Upgrades Save Money and Energy

Hamilton Health Sciences, Mackenzie Richmond Hill Hospital, and St. Joseph's General Hospital Elliot Lake



Initiative Goal: Reduce Energy Consumption

The Issue

Canadian health care facilities have one of the highest energy intensities in the commercial and institutional sectors. The use of incandescent and fluorescent light fixtures not only increases electricity costs and greenhouse gas emissions through higher energy consumption, it has also been linked to poor patient health and comfort. Light Emitting Diodes (LED) are an effective strategy for health care facilities to lower their electricity and operational costs, energy consumption, and create a healthier environment for both their patients and staff members. This case study profiles three Ontario health care providers that have completed different levels of energy-efficient lighting upgrades: Hamilton Health Sciences, Mackenzie Richmond Hill Hospital (Mackenzie Health) and St. Joseph's General Hospital Elliot Lake.

Benefits

Environmental: Reduce energy consumption and greenhouse gas emissions.

Financial: Reduce costs on energy bills and lighting maintenance costs.

Patient Experience: Improve comfort and safety for patients and staff.

Sustainability Strategy Implemented

In 2014, **Hamilton Health Sciences** converted 320 fixtures from 150-watt metal halides to 73 watt LEDs in one of the facility's parking garages.

In 2015, **Mackenzie Richmond Hill Hospital (Mackenzie Health)** worked with Sodexo, WESCO, Phillips Lighting, and Conrad Lighting Solutions to convert 100% of their lights to energy-efficient lighting. As the first hospital to switch to 100% LED lighting in Alectra's service territory, Alectra provided Mackenzie Health with a Certificate of Achievement and a cheque for \$127,314.

In August 2016, **St. Joseph's General Hospital at Elliot Lake** had a full energy audit performed by the Canadian Coalition for Green Health Care's fully certified Healthcare Energy Leaders Ontario (HELO) team, and recently replaced two thousand T8 fluorescent tubes with LED fixtures.

Implementation process

As one of the first hospitals to complete a full retrofit of all facility lighting, Mackenzie Health and its partners developed a comprehensive implementation process to tackle the task. Beginning with budget analysis, the budget and desired financial and non-financial outcomes of the project were identified. Once an audit of the current lighting and recommendations for a lighting retrofit were completed, a project proposal was developed and approved. Finally, a management team was created to provide logistics and work with contractors to executive the new lighting system.

Tracking Progress

HAMILTON HEALTH SCIENCES

Since 2015, the parking garage lighting retrofit has converted 320 metal halide fixtures to 73 watt LED fixtures, resulting in an annual energy savings of 257,894 kWh, which is equivalent to reducing greenhouse gas emissions from driving a passenger vehicle 700,000 km!¹

ST. JOSEPH'S GENERAL HOSPITAL ELLIOT LAKE

After having an energy audit done by Healthcare Energy Leaders Ontario (HELO), St. Joseph's General Hospital at Elliot Lake received a cheque for more than \$3000 from Hydro One, covering 50% of the audit costs.

MACKENZIE HEALTH

Mackenzie Health has realized an annual energy savings of 1.6 million kWh, has cut annual energy costs by \$210,000, and has saved 50% in hospital lighting operational costs. It is estimated that the energy savings over the life of the investment will exceed \$1.1 million and the payback will be six years.

¹Calculations based on the EPA's [Greenhouse Gas Equivalencies Calculator](#)

Next Steps

Through a contract with Johnson Controls, Hamilton Health Sciences is completing a \$50 million facility energy retrofit and renewal program. It is expected that the \$50 million spent in upgrades will be paid for by utility savings over ten years. Although the program is not limited to lighting, it will replace all lighting at the Hamilton General, and mechanical and common space lighting at other campuses with energy-efficient lighting.

The Mackenzie Richmond Hill Hospital's energy-efficient lighting upgrade was completed as part of a comprehensive five-year energy conservation and demand management plan developed under Ontario Regulation 397/11 to reduce energy consumption and greenhouse gas emissions across all facilities. The plan outlines a series of completed, planned, or proposed measures to be completed during each fiscal year until the end of 2019, with a target energy reduction of 10% within the five years.

Hamilton Health Sciences is a network of seven hospitals, a cancer centre and an urgent care complex, servicing over 2.3 million residents in Hamilton and south central Ontario.

Mackenzie Health is a regional healthcare provider, serving more than 1 million residents in Southwest York Region, Ontario. The network includes Mackenzie Richmond Hill Hospital, Mackenzie Vaughan Hospital, community-based services in Richmond Hill, Vaughan and surrounding communities, and numerous academic partners.

The Corporation of St. Joseph's General Hospital Elliot Lake consists of three facilities: St. Joseph's General Hospital Elliot Lake, The Oaks Centre, and St. Joseph's Manor. Together the facilities provide acute care, long term care, and a residential substance abuse treatment centre.

Contact Information

Samantha Putos, Sustainable Health Care Programs
Canadian Coalition for Green Health Care

samantha@greenhealthcare.ca
<http://greenhealthcare.ca/LEDs>

*Project funding support provided by the
Government of Ontario.*

