

LED Roadway Lighting Ltd

Halifax & Amherst, NS

The technology

High-efficiency, low-maintenance street and area light fixtures.

LED Roadway Lighting (LRL) designs and manufactures street lights that combine high-efficiency LEDs (light-emitting diodes) and reliable luminaire systems. These fixtures are designed to be maintenance free for 20 years. The LRL products are replacements for high-pressure sodium (HPS), metal halide (MH), and induction lighting.

Natural colour rendering with high-temperature white light (approximating daylight, compared to the lower-temperature yellow of sodium lighting) is beneficial to seeing at night.

The fixtures are designed to maximize heat dissipation and for self-cleaning. They meet current industry lighting design standards and light-level guidelines of IES RP-8 (Illuminating Engineering Society of North America Guidelines for Roadway Lighting), CIE (International Commission on Illumination), and BSI (British Standards Institution). They are full cut-off, IDA-approved (Dark-Sky-certified) fixtures: no wasting of light and no glare for drivers. They are also amenable to programmed dimming.

The fixtures are thoroughly tested for environmental and structural stresses (temperature, humidity, vibration, wind, and shock).

A Nova Scotia-wide pilot project resulted in 53 percent estimated average energy savings from replacing 1,100 standard cobra-head HPS fixtures. Of 250 respondents surveyed following the replacements, 95 percent viewed the installations positively; 92 percent responded positively to the question “Would you like to see more in your municipality?” With its latest generation of fixtures, the company expects energy savings of up to 80 percent.

Specifications

- Correlated colour temperature of LEDs: 5000 K standard (4500 K optional)
- Assumed total fixture light-loss factor (accounting for LED lumen depreciation, dirt and degradation of optics, and an equipment factor) over 20 years = 0.72
- Fixture efficacy: with proprietary optics and high-efficacy LED light sources, the LRL SAT-48S fixture delivers approximately 80 lumens/watt (lm/W), compared to an equivalent 100 W HPS fixture at 40–50 lm/W
- Maintenance-free service life: 20 years, based on no required lamp changes, reliable custom-designed power supply drivers using aircraft- and automotive-grade components and effective thermal management, and self-cleaning design
- Suitable for adaptive lighting (i.e., programmed dimming)
- Materials: die-cast aluminum, lead-free, mercury-free
- Payback: depends on a number of variables; a typical calculated 20-year life-cycle cost (for a city with 20,000 150-W HPS fixtures) is less than 50% of an equivalent HPS installation.

Environmental benefits

Reduction in greenhouse gas (GHG) emissions depends on the source of electrical power. A quantity of 4,300,000 100W HPS fixtures (based on estimated quantity of HPS street lighting fixtures in Canada) that are operational for an average of 12 hours per night would consume 2,580,258,900 MWh of energy annually. If an installation of 4,300,000 HPS fixtures were to be replaced with LRL's Satellite Series fixtures (SAT-48-350 mA), the environmental impact, per year, would translate into a savings of 1,803,355 MWh of energy, a reduction of 327,489 tonnes of GHG, 761,603 barrels of crude oil not consumed, and 59,980 cars taken off the roads.

Applications

street lighting; security and sign lighting; lighting for parking areas, pathways, airports (arrivals/departures areas), car dealerships, bridges and tunnels

Advantages

Reduction in energy consumption and GHG emissions; low maintenance requirements; light is directed where it's needed; daylight colour rendering; lead- and mercury-free; instant on/off; no infrared or ultraviolet radiation; upgradable; recyclable design

LRL has the capacity to build 100,000 LED fixtures annually in Amherst, NS. The company currently employs more than 100 Nova Scotians.

The export potential is tremendous. LRL has more than 250 installations in 9 countries. The company has an increasing number of independent reps and distributors (currently more than 40) disseminating the technology to municipal, utility, and commercial-industrial users worldwide.