



CITY OF HAMILTON
PUBLIC WORKS DEPARTMENT
Engineering Services Division

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| TO: | Chair and Members Public Works Committee |
| COMMITTEE DATE: | April 7, 2014 |
| SUBJECT/REPORT NO: | Update on Light-Emitting Diode (LED) Street Lighting (PW14037) - (City Wide) |
| WARD(S) AFFECTED: | City Wide |
| PREPARED BY: | Gord McGuire (905) 546-2424, Extension 2439 |
| SUBMITTED BY: | Gerry Davis, CMA General Manager Public Works Department |
| SIGNATURE: | |

RECOMMENDATION

- (a) That the Public Works Department be authorized to formally engage the Ontario Energy Board on an ongoing basis for rate applications and all other matters related to street lighting, to ensure service costs are mitigated;
- (b) That the General Manager of Public Works report back to the Public Works Committee on results of a Light-Emitting Diode (LED) Study.

EXECUTIVE SUMMARY

Report PW13075 entitled "Outdoor Lighting Implementation" was presented to Public Works Committee on October 7, 2013, and noted:

"As discussed at the September 3, 2013, Public Works Committee meeting, the benefits and risks associated with City-wide LED conversion has been examined and a subsequent report will be brought forward by Q1 of 2014."

This report outlines the recent history of cost increases to the street lighting service and the proposed mitigation measures to address future cost pressures. This is a precursor to the LED conversion report.

The total operational cost for street lighting has risen from \$3.5 million in 2008 to \$6.1 million in 2013. In the same period the system has only grown by approximately 3%. The three main drivers for cost increases have been:

- 1) Electrical commodity charges within the energy bill;
- 2) Service related charges within the energy bill; and
- 3) Maintenance costs.

Commodity charges include Electricity and Global Adjustment (GA), which are charged based upon the amount of electricity consumed. The GA alone has risen from \$800,000 in 2010 to \$1.6 million in 2013, or a 90% increase in three years. These charges are paid to the generators of electricity in Ontario.

Service related charges include the fixed costs of local distribution companies (LDC's), Horizon Utilities Corporation (HUC) and Hydro One Networks (HONI), to provide electricity and services attributed to street lighting. In the HUC service area alone costs have risen from \$240,000 in 2008 to \$1.5 million in 2013, or a 600% increase in three years. These charges go to Horizon and Hydro One.

Maintenance costs are for the maintenance of the street lighting infrastructure - that is the bulbs, the fixtures and the arms. Maintenance costs have risen from \$600,000 in 2008 to \$830,000 in 2013. This is mostly due to the additional work required to address aging equipment and wear-out of the lighting system. This represents a total increase of \$230,000, or 35% in three years. These charges are paid to Hamilton's maintenance contractor.

Service related charges have increased beyond any economic index and have had the largest impact on costs. The rates for these Energy distributors are applied for and approved by the Ontario Energy Board, in lieu of reaching an agreement to control costs directly with energy distributor the only opportunity the City of Hamilton has to control these costs is to appear as an intervener before the OEB.

In order to address escalating energy cost and system reliability, a subsequent report will discuss the adoption of emerging next generation street lighting technologies such as Light Emitting Diode (LED).

Alternatives for Consideration - See Page 6

FINANCIAL - STAFFING - LEGAL IMPLICATIONS

Financial: Detailed understanding of service related costs will direct future investment in this asset. Current projections to retrofit the City with LED balanced against investments in distribution systems to offset service costs are unclear. That is, investment now to avoid cost in street lighting may not be best applied to energy saving devices, but rather in disconnecting from Horizons distribution system.

Staffing: N/A

Legal: N/A

HISTORICAL BACKGROUND

The City of Hamilton has been responsible for the street lighting system since approximately 2000 due to changes mandated by Ontario Energy Board (OEB). Prior to that, the system was run and managed on our behalf by Hamilton Hydro (now Horizon Utilities) and Hydro One.

As outlined above, there has been significant upward pressure on the street lighting budget over the last five years. These pressures are partly due to a new Cost Allocation (CA) model that the OEB introduced in 2005. The CA model created a situation where street lighting was subjected to costs within the new model that are not well defined. These issues have caused widespread increases and subsequently caused the OEB to initiate a significant review of the unmetered rate classes (EB-2012-0383).

These charges are collected on a fixed charge per connection basis. They are not related to the total amount of electricity consumed.

In a five year period, beginning in 2008, fixed costs for the flat-rate street lighting customer class escalated significantly. The cost increases were a result of an Ontario Energy Board (OEB) effort to balance the contribution of fixed connection costs between all customer rate classes (revenue to cost ratio) as it was implied street lighting was under contributing.

The City has been actively discussing this issue with both LDC's - HUC and HONI. The cost increase from HUC alone over the last five years (2008-2013) on connection fees has increased \$900,000 which is over a 500% increase.

On a five year basis the LDC's apply to the OEB for a rate rebasing that sets delivery rates and fixed fees for that period. These rate filings have been done in the past without any interaction between the LDC and the City of Hamilton.

POLICY IMPLICATIONS AND LEGISLATED REQUIREMENTS

None

RELEVANT CONSULTATION

Internal Consultation

Finance & Corporate Services Department - Finance staff provided input into year over year actual costs and projections for budget impacts on future years.

Public Works Department - Corporate Assets & Strategic Planning, Energy, Fleet & Traffic, Office of Energy Initiatives

External Consultation

Horizon Utilities Corporation - Consulted on rate setting for the street lighting customer class (within the Horizon service territory) and provided input related to future rate setting and energy cost trends.

Hydro One Networks Incorporated - Consulted on rate setting for the street lighting customer class (within the Hydro One service territory) and provided input related to future rate setting and energy cost trends.

Ontario Energy Board - Provided input into energy rate setting and process as it relates to the street lighting customer class. Consulted on the rate setting, intervention

application process and customer centric expectations related to consumer versus service provider engagement.

ANALYSIS AND RATIONAL FOR RECOMMENDATION

Recommendation (a) - Be authorized to formally engage the Ontario Energy Board on an ongoing basis for rate applications and all other matters related to street lighting to ensure service costs are mitigated.

Without significantly increasing consumption or system extents over the past five years, the largest increase to costs has been the LDC service charges. Due to the CA model that assigns costs by connection, street lighting is disproportionately charged for elements like asset depreciation at a much higher rate than energy consumption. In the Horizon service area street lighting is 0.7 % of the total energy distributed by Horizon, yet we are 3.5% of the charges on pole depreciation due to the connections model.

In 2014 there are opportunities to engage the regulatory body (OEB) and the LDC to ensure our voice is heard during applications.

The OEB has recognized that the street lighting rate class has experienced issues with cost increases and in 2012 the OEB commenced a review of the unmetered load rate class, under board proceeding EB-2012-0383.

Both Hydro One and Horizon Utilities will be submitting Cost of Service applications to the OEB that will impact our fixed / delivery costs for the period of 2015-2019.

In order to ensure that the impacts are clarified and fully understood in context of costs to the City in the next four years it is recommend that the City engages and understand the impacts of these rate applications.

Hydro One has already submitted an application that appears to increase our costs by 24% in service charges alone. In consultation with the Energy Office the City is in contact with the OEB to develop a better understanding of the reasons for the cost increases.

Projected increases to our service costs in a five year period if Hydro One is successful are estimated at \$165,000 annually for a five years total of approximately \$825,000.

Report EB-2012-0383 was clear in outlining that the street light rate class had seen the majority of large increases, and in section 2.4 of the report they stated:

"It appeared that municipal customers were unaware of the phasing-in of higher revenue to cost ratios that had taken place over the past three to five years. They were also unaware that the repeated rate increases attributable to the large changes in the revenue to cost ratios were unlikely to occur again."

City staff are concerned that the rate increases have not, in fact, reached the limit, and it appears through the rate application by the LDC that there may be further increased pressure on the system.

Costs to intervene are expected to be in the \$40,000 range dependant on the requirements and time required. These costs can be covered through the operating savings in the street light operating centre.

Recommendation (b) - Report back to Public Works Committee on results of recommendation (a) and potential LED retrofit scenarios in Q2 2014

We plan on delivering more LED fixtures in the near term. The progress and projected costs savings will be measured and communicated to Council as the information is available.

In conjunction with these projects additional information surrounding potential funding opportunities for a system conversion will be communicated.

The business case for a complete system conversion relies on a capital investment to support a return on investment within a defined payback window. Using the metrics developed from these projects will support a more refined model. Factors that continue to influence in the payback window will be long term energy prices, services costs and maintenance costs.

ALTERNATIVES FOR CONSIDERATION

Council may wish not to engage the Ontario Energy Board and accept price increases as approved, with no input nor defence.

ALIGNMENT TO THE 2012 - 2015 STRATEGIC PLAN

Strategic Priority #1

A Prosperous & Healthy Community

WE enhance our image, economy and well-being by demonstrating that Hamilton is a great place to live, work, play and learn.

Strategic Objective

- 1.6 Enhance Overall Sustainability (financial, economic, social and environmental).
Through a reduction in energy usage we will address both the financial and environmental sustainability aspects of this objective.

Strategic Priority #2

Valued & Sustainable Services

WE deliver high quality services that meet citizen needs and expectations, in a cost effective and responsible manner.

Strategic Objective

- 2.1 Implement processes to improve services, leverage technology and validate cost effectiveness and efficiencies across the Corporation.

The implementation of new LED technology will improve service levels through more targeted lighting, improve cost effectiveness by using less energy and lever

technology advances by implementing engineered lighting solution that reduce light trespass issues.

2.3 Enhance customer service satisfaction.

Though targeted lighting systems citizens will receive enhanced service increased satisfaction with the street lighting program.

Strategic Priority #3

Leadership & Governance

WE work together to ensure we are a government that is respectful towards each other and that the community has confidence and trust in.

Strategic Objective

- 3.1 Engage in a range of inter-governmental relations (IGR) work that will advance partnerships and projects that benefit the City of Hamilton. There is an opportunity to work with other levels of government in deploying more energy efficient lighting systems.
- 3.2 Build organizational capacity to ensure the City has a skilled workforce that is capable and enabled to deliver its business objectives.

APPENDICES AND SCHEDULES ATTACHED

None