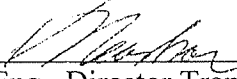


Environment and Sustainability Standing Committee
January 6, 2011

TO: Chair and Members of the Environment and Sustainability Standing Committee

SUBMITTED BY:



Ken Reashor, P. Eng., Director Transportation & Public Works

DATE: December 21, 2010

SUBJECT: Second Generation LED Street Light Pilot Project

ORIGIN

- 1) December 4, 2007, Regional Council endorsed the Community Energy Functional Plan, part of which included a Street Lights Efficiency Strategy.
- 2) The Halifax Regional Municipality is in the process of converting 2100 street lights from high pressure sodium (HPS) technology to high efficiency LED technology.

RECOMMENDATION

It is recommended that the Environment and Sustainability Standing Committee recommend that Regional Council approve:

- 1) HRM participation in a two year LED street lighting pilot project which is designed to test measure and validate variables of a second generation LED technology,
- 2) An increase to capital project CBX01161 of \$300,000 to install 2400+ additional LED street lights in HRM as part of the pilot project,
- 3) A withdrawal of \$ 300,000 from Q131 Energy and Underground Services Co-location Reserve to fund the increase in CBX01161. All savings derived from the project will be transferred back to Q131 to comply with the requirements of the reserve and fund future energy efficiency projects.

BACKGROUND

In October, 2010, LED Roadway Lighting Ltd. (LRL) introduced HRM staff to a street light pilot project that they were proposing to Sustainable Development Technology Canada (SDTC). This pilot represents a second generation LED street light technology, incorporating LED lights with dimming/monitoring capability. They expressed interest in using HRM as the installation venue. On November 30, 2010, LRL indicated that the project had passed initial screening and was invited by SDTC into Phase II of the funding process. This phase entails the development of an extensive business plan that demonstrates how LRL and its partners will work to test, measure and validate its technology as it transitions from research & development to full commercialization in the market. At this point, it is necessary for the municipality to formally commit to participating in the application for funding from the Federal Government.

DISCUSSION

HRM has been asked to be the installation venue for the installation of 2400+ advanced prototype LED street lights. The fixtures are based on the same fixture which the municipality purchased in September and is in the process of installing. It is the same fixture which was installed in HRM as an earlier province wide pilot project. With the completion of the present LED street light project, HRM will have approximately 2400 LED street lights in operation. This pilot will double that number, and increase the percentage of municipality owned street lights to about 34%.

As a partner in this project, HRM is responsible for installing the 2400+ fixtures, maintain and monitor the luminaires throughout the two year lifecycle of the SDTC project. The fixtures will be supplied at no cost to the municipality, and will remain with HRM at the completion of the pilot project. This represents a value of approximately \$1.7 million. Based on a recent installation contract, HRM would be committing to spend approximately \$300,000 in 2011/2012, to participate in this project. Annual energy savings associated with this conversion would be in the \$120,000.00 range. With annual maintenance savings estimated to be in the in the \$30,000 range, a simple payback of about two years would be anticipated. Additional monitoring and maintenance costs associated with the pilot project would be managed within existing operating budgets.

In addition to the ability to participate in leading edge street lighting technology, this project will realize immediate environmental benefits. A reduction of approximately 1000 tonnes of greenhouse gas emissions will result due to the energy consumption reduction using LED lights.

BUDGET IMPLICATIONS

If accepted by Sustainable Development Technology Canada, the cost for supplying the 2400+ fixtures will be covered by SDTC funds. The installation cost will be funded through capital project CBX01161 through a withdrawal in the form of a loan of \$300,000 from Energy and

Underground Services Co-location Reserve Q131. Monitoring and maintenance costs associated with the two year pilot project will be managed through existing operating budget. Anticipated annual energy savings of approximately \$120,000 - \$150,000 will be directed to Reserve Q131 in order for the reserve to recapture the original investment and enable the reserve to create capacity for additional projects.

Budget Summary:

The budget availability has been confirmed by Financial Services.

Reserve Account Q131 – Energy and Underground Services Reserve

Projected Balance, Mar 31, 2011	\$ 1,611,593
Less: CBX01161 funding	<u>\$(300,000)</u>
Uncommitted Balance	<u>\$ 1,311,593</u>

Capital Account CBX01161 - Energy Efficiency Projects

Cumulative Unspent Budget	\$ 447,899.66
Add: Budget Transfer from Q131	<u>\$ 300,000.00</u>
Uncommitted Balance	<u>\$ 747,899.66</u>

FINANCIAL MANAGEMENT POLICIES / BUSINESS PLAN

This report does comply with the Multi-Year Financial Strategy, the approved Operating, Capital and Reserve budgets, policies and procedures regarding withdrawals from the utilization of Capital and Operation reserves, as well as any relevant legislation. If approved, the gross Capital budget will be increased and Reserve budget decreased. There will be no net effect to Operating or Capital.

COMMUNITY ENGAGEMENT

The general public has had exposure to the LED street light technology through an earlier 2010 pilot project which involved the installation of approximately 300 LED street light fixtures throughout HRM. In addition, the municipality has replaced approximately 400 additional fixtures as part of a 2100 fixture conversion project expected to be completed early in 2011. Response to the LED street light installations has been limited, and, for the most part positive. Additional community engagement is not considered to be necessary.

ALTERNATIVES

HRM is not obligated to participate in this project proposal. However, by rejecting the offer, the municipality misses a possible opportunity to participate in an exciting technological evaluation by a local lighting manufacturer. In addition, this project would realize significant energy consumption, and operating costs and greenhouse gas emissions reductions for the life of the fixtures which revert to the municipality. The alternative to not participate in the application to the Sustainable Development Technology Canada is not recommended.

ATTACHMENTS

APPENDIX A – LED Roadway Lighting Ltd Pilot Project Reference Letter

A copy of this report can be obtained online at <http://www.halifax.ca/council/agendasc/cagenda.html> then choose the appropriate meeting date, or by contacting the Office of the Municipal Clerk at 490-4210, or Fax 490-4208.

Report Prepared by: Angus Doyle, P. Eng., Manager Utilities Coordination 490-5019

Financial Approval by: _____



Cathie O'Toole, CGA, Director of Finance, 490-6308

LED ROADWAY LIGHTING

leading the LED technology wave

November 30, 2010

Mr. Angus Doyle, P. Eng
Manager, Utilities Coordination
Halifax Regional Municipality
PO Box 1749
Halifax, NS
B3J 3A5

Dear Mr. Angus Doyle:

LED Roadway Lighting (LLR) would like to start by thanking the Halifax Regional Municipality (HRM) for its ongoing support throughout the development of its energy efficient LED street/outdoor lighting system. HRM's ongoing feedback and support to date has been instrumental in enabling LRL to develop its industry leading, high performance LED luminaire. LRL now looks to expand its relationship with HRM to include testing/validation of its next generation of LED street lighting technology, which includes pre-programmed & GPS-based dimming, wireless command and control, and seamless integration into renewable energy resources.

LRL recently engaged Sustainable Development Technology Canada (SDTC) through a Statement of Interest (SOI), which expressed LRL's interest in accessing funds to support the pre-commercialization phase (test, validate) of its next generation technology to be incorporated in the existing Satellite Series™ LED (light emitting diode) street/outdoor luminaire. On November 26, 2010, SDTC invited LRL into Phase II of the funding process. Phase II of the SDTC process entails the development of an extensive business plan that demonstrates how LRL and its consortium partners will work to test, measure, and validate its new technology as it transitions from R&D to full commercialization in the market. Additional information regarding the SDTC funding process is included at the end of this letter.

The SDTC project brings together a consortium of members that benefit, through fiscal and/or environmental outcomes, from the overall project alongside SDTC. The current consortium includes both private and provincial contributors with HRM integrated as an overall project supporter and installation venue for 2,400+ advanced prototype street luminaires. The project will span two (2) years and will be designed to test, measure, and validate all variables of the new technology, including energy efficiency, lighting outputs, system reliability, and end-user interaction/usability. The project will also look to test luminaire performance in a variety of geographic locations i.e. urban vs. rural, roadway vs. parking lot, etc. This process of testing and validation is vital to insuring LRL's new technology will meet customer and market needs. Overall, the pilot project will be designed to explore the limits of energy efficiency, control, and usability as it relates to LED street lighting technology. The advanced control systems in the Satellite Series™ LED street lighting system are designed to enable LED's potential for energy conservation while bolstering its ability to reduce greenhouse gas emissions.

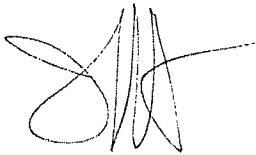
LED ROADWAY LIGHTING

leading the LED technology wave

SDTC expects consortium partners to invest resources in support of the project. LED Roadway Lighting Ltd. invites Halifax Regional Municipality (HRM) to join them as a consortium partner. As a partner, LRL is requesting HRM acts as a venue for the installation of 2,400+ Satellite Series™ luminaires with new, advanced feature set. LRL offers these luminaires at no cost to HRM. These fixtures will lay the foundation for a large scale pilot project that tests, measures, and validates the performance and usability of the new technology in the Satellite Series™ luminaires. Also, LRL requests HRM support the SDTC project by providing the necessary resources to install, maintain, and monitor (ongoing) the luminaires throughout the lifecycle of the SDTC project. LRL will work alongside HRM, and its other consortium partners, to insure a productive outcome to the pilot project.

Information on LED Roadway Lighting Ltd. and Sustainable Development Technology Canada is attached to this letter for reference purposes. Please review this material and let LRL know if questions arise. LRL appreciates HRM's ongoing support and looks forward to a response regarding this request to participate as a partner in the SDTC project. If deemed necessary, LRL is available for a meeting and/or presentation regarding our intentions as they relate to HRM's participation in this project with SDTC.

Regards,



Jeff Libis
Director of Business Development & SDTC Project Lead
LED Roadway Lighting Ltd.
(902) 450-0483

LED ROADWAY LIGHTING

leading the LED technology wave

LED Roadway Lighting Ltd. (LRL):

LED Roadway Lighting Ltd. is a world leader in the development of energy efficient and environmentally friendly light emitting diode based (LED) lighting. Innovations in optics, thermal management, and design for longevity to maximize return on investment have been the cornerstone of our design. LED lights are one of the most environmentally sound and reliable ways to improve infrastructure. LED Roadway Lighting Ltd. has helped clients across the globe to not only conserve energy through retrofitting with LED, but has provided municipalities and utilities with an easy-to-maintain way to reduce greenhouse gases.

Sustainable Development Technology Canada (SDTC):

Sustainable Development Technology Canada (SDTC) is a not-for-profit foundation that finances and supports the development and demonstration of clean technologies which provide solutions to issues of climate change, clean air, water quality and soil, and which deliver economic, environmental and health benefits to Canadians. SDTC operates two funds aimed at the development and demonstration of innovative technological solutions. The \$550 million SD Tech Fund™ supports projects that address climate change, air quality, clean water, and clean soil. The \$500 million NextGen Biofuels Fund™ supports the establishment of first-of-kind large demonstration-scale facilities for the production of next-generation renewable fuels.

SDTC Funding Process Overview:

In the first phase, entrepreneurs make an initial application through a simple and straightforward Statement of Interest (SOI). These SOIs are designed to provide SDTC a good sense of proposed technologies without imposing an arduous application process. Completed SOIs are screened and evaluated by SDTC as well as external experts to ensure adherence to selection criteria (Gate 1) that include capabilities in technology, marketing, and business (partnerships and funding). Each of these topics is essential to project assessment.

SOIs that comply are invited to submit a proposal (Phase II). This is more detailed than the SOI, and equates more or less to a business plan for the proposed technology. External technical and business experts review the proposals (Gate 2) and report their recommendations to SDTC. As well, SDTC performs visits to applicant-consortia sites and identifies projects that need time to develop further.

SDTC's Investment Committee and Project Review Committee then review the refined shortlist of projects (Gate 3), and present a final list of recommendations to the SDTC Board of Directors for review and final approval (Gate 4). These approvals are made in principle, subject to successful contract negotiations.

- Phase I –Statement of Interest (SOI) –not too onerous, it is informative and sufficient to assess
- Phase II –Proposals by Invitation –equivalent to a business plan
- Gate I –SDTC review
- Gate II –technical and business experts
- Gate III –Investment Committee + Project Review Committee
- Gate IV –Board Approval