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Item No. 12.1.2
Environment & Sustainability Standing Committee
May 3, 2018

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

-Original Signed-

SUBMITTED BY:

Kelly Denty, Acting Director, Planning & Development

-Original Signed-

Jacques Dubé, Chief Administrative Officer

DATE: April 6, 2018

SUBJECT: **Federal Funding Opportunity: Low Carbon Economy Challenge**

ORIGIN

Staff initiated request to pursue a new federal funding opportunity for climate change mitigation projects.

LEGISLATIVE AUTHORITY

Administrative Order Number One, Schedule 5, Environment and Sustainability Standing Committee Terms of Reference

Section 4(c) states: "The Environment and Sustainability Standing Committee shall: (c) promote the achievement of the Municipality's greenhouse emission reduction commitments."

Halifax Regional Municipality Charter

Section 79(1) states, "The Council may expend money required by the Municipality for ...

- (y) furnishing and equipping any municipal facility;
- (z) acquisition of equipment, materials, vehicles, machinery, apparatus, implements and plant for a municipal purpose;
- (ad) a system for the supply or distribution of electricity, gas, steam or other source of energy;
- (al) wastewater facilities and stormwater systems;
- (am) water systems; and
- (an) solid-waste management facilities."

RECOMMENDATION

It is recommended that the Environment & Sustainability Standing Committee recommend that Halifax Regional Council direct staff to submit Expressions of Interest through the Low Carbon Economy Challenge for the following projects:

- Alderney 5 Upgrades

- Scotia Bank Centre Waste Heat Recovery
- Dartmouth Sportsplex Cogen Plant
- Pool Filtration System Upgrades
- Landfill Gas Utilization at Otter Lake Landfill
- Halifax Organics Management and Long-Term Operating Contract RFP
- Cogswell District Energy System

BACKGROUND

As part of the Pan-Canadian Framework on Clean Growth and Climate Change, the Low Carbon Economy Challenge (LCEC) has been created as one of the federal funding programs under the Low Carbon Economy Fund for projects that generate clean growth and reduce greenhouse gases (GHGs). The LCEC has two streams – Champions and Partnerships. Halifax Regional Municipality is eligible for the 450 million-dollar Champions stream.

An Expression of Interest (EOI) is required in order for the federal government to determine eligibility, and are due May 14, 2018. The federal government will then invite formal proposals for eligible projects, likely due this summer. The turnaround time for submitting an EOI is very short, as the LCEC was only launched mid-March.

The federal contribution to a successful project can range from \$1 to 50 million in eligible costs, and municipalities are required to contribute 40% of total project costs. The projects must be new projects that could not proceed without funding assistance. All costs must be incurred by March 2022.

Projects will be assessed based on the following criteria:

- Cumulative greenhouse gas emissions reduced per dollar of federal funding
- Greenhouse gas emissions reduced in 2030 per dollar of federal funding
- Project feasibility and risk
- Other benefits that contribute to clean growth and a clean environment.

Emission reductions must also be:

- Material (measurable and verifiable)
- Complementary to existing actions
- In-line with Canada's 2030 climate target
- Cost-effective

Eligible sectors include building retrofits, industrial energy efficiency, fuel switching and process changes, forestry, agriculture, waste, transportation retrofits, and energy production for own use. Complete program information can be found online at www.canada.ca/en/environment-climate-change/services/climate-change/low-carbon-economy-fund/challenge.html.

DISCUSSION

Staff proposes to submit LCEC Expressions of Interest for the following projects:

Alderney 5 Upgrades

The cooling load for the Alderney Gate offices and Alderney Library is currently supplemented by a seawater cooling and geothermal storage system. The geothermal system has been operating since 2011 and was originally designed to serve all areas of the Alderney Landing complex. This system needs to be upgraded and recommissioned to identify improvements to make the system run more efficiently and achieve further greenhouse gas reductions by offsetting higher cooling loads.

Scotiabank Centre Waste Heat Recovery

The Scotiabank Centre is the largest multipurpose facility in Atlantic Canada and home to the Halifax Mooseheads. The ice rink stays in place for most of the year, as it is simply covered for non-ice events. Refrigeration plants generate significant waste heat to maintain the rink ice. A waste heat recovery system could offset heating costs for domestic hot water, in-floor heating or snow melting.

Dartmouth Sportsplex Cogen Plant

Cogeneration is the generation of both heat and electricity onsite. The cogeneration process uses heat that is normally lost in conventional power plants. The Dartmouth Sportsplex can use this thermal energy to heat the building and hot water. The cogeneration plant will use natural gas, which is currently available to the facility. The Dartmouth Sportsplex mandate is to provide affordable recreational services. Cogeneration technology will provide operational savings. This project is in addition to, and will not interfere with, the renovations that are currently being carried out at the facility.

Pool filtration system upgrades

The filtration systems in municipal pools need to be upgraded. The regenerative media filter can remove particles as small as one micron, whereas sand filters remove particles as small as 20 microns. The system boasts up to 90% in water savings, 75% less space than a typical sand filter, 50% energy savings and 30% chemical savings.

Landfill Gas Utilization at Otter Lake Landfill

The Otter Lake Landfill extracts landfill gas (LFG) from each of its six closed cells, with each cell producing decreasing amounts of methane-containing landfill gas as the cell ages. When an open landfill cell can support it, LFG extraction is installed and the open cell is connected to the rest of the system. Once a landfill cell is closed it continues to generate landfill gas for several years, meaning LFG generation potential exists for as long as HRM landfills waste. HRM, Mirror NS, Heritage Gas and Dalhousie University are investigating the use of landfill gas at the Otter Lake Landfill, which is currently being flared to reduce greenhouse gas emissions. HRM could qualify for funding under the LCEC program for the capital required to upgrade and transport the gas produced by the landfill to offset Dalhousie's fossil fuel usage with a renewable natural gas. Other partners, such as Nova Scotia Power Inc., and energy transmission systems are also being considered for this project.

Halifax Organics Management and Long-Term Operating Contract RFP

Halifax Solid Waste has completed the RFQ phase for the procurement of HRM's future source separated organics processing facility, and a potential technology being put forward by proponents is anaerobic digestion. Anaerobic digestion breaks down food waste in the absence of free oxygen, producing a methane-yielding biogas. This renewable natural gas (RNG) can be upgraded and used to displace natural gas from fossil fuels, or offset coal usage in electricity generation.

Halifax Water – Cogswell DES

The Municipality has requested that Halifax Water explore the feasibility of a District Energy System (DES) in the Cogswell area, to be constructed in conjunction with the overall Cogswell redevelopment project. An Ambient Temperature DES (ATDES) was determined to be the most energy efficient and economical system. The Cogswell ATDES would transfer renewable thermal energy from the nearby Halifax Wastewater Treatment Facility's wastewater effluent stream to the new buildings to be built within the Cogswell redevelopment area, thereby offsetting the need to use other forms of non-renewable energy (e.g. oil, natural gas, electricity) and their corresponding greenhouse gas emissions for the purposes of heating and cooling.

Submitting EOIs keeps the window of opportunity open and allows staff to pursue formal applications for eligible projects. If, while preparing the formal proposals, it becomes clear that a project is not currently feasible, staff will not submit the proposal for that project.

FINANCIAL IMPLICATIONS

