

TO:	CHAIR AND MEMBERS COMMUNITY AND NEIGHBOURHOODS COMMITTEE MEETING ON SEPTEMBER 27, 2011
FROM:	JAY STANFORD, M.A; M.P.A. DIRECTOR, ENVIRONMENTAL PROGRAMS & SOLID WASTE
SUBJECT:	REQUEST FOR EXPRESSIONS OF INTEREST FOR PARTNERSHIP IN BIOGAS UTILIZATION

RECOMMENDATION

That on the recommendation of the Director – Environmental Programs & Solid Waste, the following actions **BE TAKEN** with respect to requesting expressions of interest for a partner to develop landfill gas and potentially other biogas feedstock utilization projects:

- (a) the Civic Administration **BE AUTHORIZED** to prepare a Request for Expressions of Interest (REOI) for a partner to develop landfill gas and potentially other biogas feedstock utilization projects with the City of London:
- (b) the Civic Administration **BE AUTHORIZED** to undertake all the administrative acts that are necessary in connection with this matter; and
- (c) the Civic Administration **BE DIRECTED** to report back on the outcome of the REOI.

PREVIOUS REPORTS PERTINENT TO THIS MATTER
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Relevant reports that can be found at www.london.ca include:

- Feed-In-Tariff Contract with the Ontario Power Authority for W12A Landfill Gas Power Plant, June 7, 2010 meeting of the Environment and Transportation Committee (ETC), Agenda Item #22
- HELP Clean Water - Revised Priority List, October 27, 2008 meeting of the ETC, Agenda Item #3

BACKGROUND

PURPOSE:

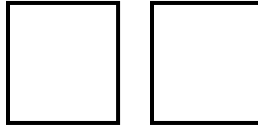
The purpose of this report is to seek approval to prepare and release an REOI for a partner to develop biogas utilization projects(s) with the City of London (e.g., public/private partnership).

CONTEXT:

Update on Landfill Gas Power Plant

Until recently, City staff have been working on plans for the development of a landfill gas fuelled power plant at the W12A Landfill on Manning Drive. Funding for this project had been obtained from the HELP Clean Water program, and an application had been made to Ontario's Feed-In Tariff Program as well. However, recent developments indicate transmission grid constraints in south-western Ontario are a significant roadblock for the development of a power plant. The following table summarizes the recent events.

Date	Activity
April 2010	Initial Feed-In-Tariff (FIT) application for a 2.4 megawatt landfill gas power plant was submitted to the Ontario Power Authority (OPA).



Date	Activity
June 2010	A report was submitted to ETC and approved by Council which authorized execution of a FIT Agreement with the Ontario Power Authority (OPA) if the FIT application was approved. This report included a review of landfill gas utilization options.
February 2011	The City was officially notified by the OPA that this application did not pass the Transmission Availability Test as there is not enough transmission capacity for the power plant. The City's application then proceeded to the next Economic Connection Test along with other applications that were not offered contracts to see if building new transmission capacity is warranted.
June 2011	<p>OPA released 300 MW of transmission capacity in the "West of London" transmission area however London's application for a landfill gas power plant did not get access to the new transmission capacity.</p> <p>During this process, City of London and London Hydro staff learned that the OPA has reserved all of available transmission capacity at the transformer station that would have been utilized by the landfill gas power plant for an undisclosed project.</p>

At this point in time, full scale electricity production is not possible at the W12A Landfill Site until transmission constraints are removed.

Biogas Update

Earlier in 2011, Union Gas approached City staff to explore the option of providing "Renewable Natural Gas" to their natural gas distribution system. Renewable Natural Gas (RNG) is landfill gas and other biologically-produced methane gas upgraded to meet pipeline quality requirements. RNG can be used for any application that natural gas is used for, such as heating buildings and fuelling vehicles.

Creating RNG from landfill gas had previously been considered by the City but was rejected because of the low price received from RNG compared to the revenue that could be generated from the sale of electricity. However, Union Gas and Enbridge Gas Distribution are planning on submitting a joint proposal to the Ontario Energy Board that, if accepted, would include a significant price premium for producing RNG.

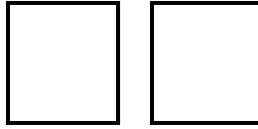
The proposal from Union Gas and Enbridge Gas Distribution includes the following:

- Approval to launch the program in 2012
- Purchase Renewable Natural Gas at specified prices and fixed term contracts (20 years)
- Continue for five years or until they reach a total volume of RNG purchased in our service area that does not exceed two percent of the total supply volume
- A proposed pricing structure for landfill of \$13 per gigajoule (GJ) for the first 150,000 GJ's and then \$6 for every GJ after 150,000 on an annual basis.
- A proposed pricing structure for anaerobic digester gas of \$17 per GJ for the first 50,000 GJ's and then \$11 for every GJ after on an annual basis.
- The utility (Union Gas or Enbridge Gas Distribution) would acquire the environmental attributes with the RNG for the benefit of all gas customers system-wide.

Using current landfill gas collection rates, the W12A Landfill we would produce around 150,000 GJ, which could yield an average price close to \$13 per GJ or 3 times the current market rate. This would generate approximately \$2 million annually which is in the same range as the revenue that would have been generated by a landfill gas power plant.

DISCUSSION:

Given the limited timeframe of the potential RNG program (5 years, or maximum 2% of system supply), the City needs to be in a position to be ready to submit an application to this program in a timely fashion.



Compared to power generation, upgrading landfill gas and biogas to RNG has a number of new, emerging and next generation technologies which City staff has limited expertise in. There are four technologies currently in use to upgrade biogas:

- Liquid absorption - chemical and physical absorption
- Solid physical adsorption - pressure swing and temperature swing adsorption
- Membrane separation
- Cryogenic separation.

There is also the option of utilizing other organic waste feedstocks, such as sewage sludge, green bin organic material, and restaurant fats, oils, and greases (FOGs) to increase biogas production. A few of Canadian cities have started to produce or plan to produce RNG from a mix of sources and some are listed below:

Hamilton, Ontario	<ul style="list-style-type: none"> • One sewage sludge digester produces biogas • Plans to upgrade to RNG prior to sending to Union Gas pipeline • Fleet vehicles then fuel with NG supplied by Union Gas
Toronto, Ontario	<ul style="list-style-type: none"> • Two Green Bin material digesters produce biogas • Plans to upgrade to RNG prior to sending to Enbridge pipeline • Fleet vehicles then fuel with NG supplied by Enbridge
St. Hyacinthe, Quebec	<ul style="list-style-type: none"> • Started off as a sewage sludge feedstock only • Phase II added local Green Bin material & local food industry waste • Gas is upgraded to RNG and sold to GazMetro • Municipality uses about 20% of RNG to heat buildings and fuel vehicles
Vancouver, British Columbia	<ul style="list-style-type: none"> • Added FOGs to existing sewage sludge digester; boosts biogas by 20% • Diverts some FOGs from sewers • Charges tipping fees for FOGs • Sells biogas to local gas utility

Durham Region and Niagara Region are also exploring RNG as an option.

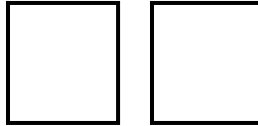
Given the range of biogas end-uses, and the technology and feedstock options, City staff recommend issuing an REOI to seek out a private sector partner, with experience in the production of Renewable Natural Gas and other landfill gas/biogas applications, to explore a range of ideas and approaches for utilizing landfill gas and other potential biogas feedstock materials, and to work on establishing a partnership framework for pursuing these potential projects.

This proposed approach, a public/private partnership, has several benefits that lend themselves very well to this potential project including but not limited to:

- Reducing municipal cost
- Obtaining private-sector investment in public-sector infrastructure
- Sharing risk and responsibility with private-sector partners
- Allocating risks to the party best equipped to manage them
- Maximizing public and private sector human resources and intellect
- Accessing new sources of funds and new specialized skills
- Enhancing revenue opportunities
- Increasing efficiency and effectiveness in design, project delivery and operations
- Obtaining related economic benefits and enhance competitiveness

It is important to recognize that there are also challenges with public/private partnerships including:

- Reducing financial rewards due to shared ownership
- Risk of financial failure of private sector partner
- Negotiating a long term deal whose benefits diminish with time due to changing circumstances



Proposed Process

The REOI process ensures transparency. It also better positions a project for potential public/private partnership funding having included a competitive evaluation process. The factors to be included in the evaluation will include experience on other RNG projects, understanding of London’s options and financial capability.

An overview of the proposed process to develop potential RNG projects is presented below:

Phase	Key Tasks	Tentative Timeline
Phase 1 REOI	<ul style="list-style-type: none"> • Prepare and release REOI • Evaluation of submissions • Approval of preferred private partner(s) by Council 	October to December, 2011
Phase 2 Project Development	<ul style="list-style-type: none"> • Execution of “working” agreement between City and preferred private partner(s) • Exchange of information and development/analysis of potential public-private partnership project(s) • Development of public-private partnership structure for any viable project(s) • Approval of any viable project(s) by Council 	January to March, 2012
Phase 3 Implementation	<ul style="list-style-type: none"> • Execution of public-private partnership agreement • Development of project 	April 2012 to ?

It is noted that the possibility exists that no viable option can be found at this time and consequently no public/private partnership project would be developed.

ACKNOWLEDGEMENTS:

This report was prepared with assistance Mike Losee, Manager – Solid Waste Engineering. This project has also been discussed with John Freeman, Manager Purchasing & Supply and Dave Mounter, Solicitor II.

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