



**STAFF REPORT  
ACTION REQUIRED**

**Amendment to Authority to Enter into Lease Agreement  
and Biogas Utilization Agreement with Toronto Hydro  
Energy Services Inc. - Green Lane Landfill**

<b>Date:</b>	June 3, 2011
<b>To:</b>	Executive Committee
<b>From:</b>	Acting General Manager, Solid Waste Management Services Chief Corporate Officer
<b>Wards:</b>	All
<b>Reference Number:</b>	P:/2011/swms/006EC (AFS #13784)

**SUMMARY**

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At its meeting on May 11 and 12, 2010, City Council authorized the City to enter into an agreement with a partnership of Toronto Hydro Energy Services Inc. and Ontario Plants Propagation Ltd. ("THESI/OPPL") to utilize the biogas from the Green Lane Landfill in a biogas utilization system to generate electricity and heat ("co-generation") and also authorized the City to enter into a lease agreement with THESI/OPPL for City lands forming part of the buffer for the Landfill Site on which to locate biogas utilization system equipment.

To date, an agreement has not been reached with THESI/OPPL as a result of a constraint on new electricity generation projects in the West of London transmission area. To alleviate this constraint staff are recommending to amend the existing City Council authority to reflect changes to the project scope needed to allow the project to advance.

## **RECOMMENDATIONS**

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### **The Acting General Manager, Solid Waste Management Services and the Chief Corporate Officer recommend that:**

1. City Council amend Executive Committee Item EX43.8, as adopted by City Council at its meeting held on May 11 and 12, 2010, by deleting Parts 1 to 10 thereof and replacing them with the following:
  1. City Council authorize the City to enter into a Lease Agreement with Toronto Hydro Energy Services Inc. for the lease of approximately 0.5 Hectare of the Green Lane Landfill buffer lands, substantially on the terms set out in Attachment 1 and such other terms as may be deemed appropriate by the Chief Corporate Officer, and in a form satisfactory to the City Solicitor, and that each of the Chief Corporate Officer and the Director of Real Estate Services be authorized severally to execute the Lease Agreement on behalf of the City.
  2. City Council authorize the City to enter into a Biogas Utilization Agreement with Toronto Hydro Energy Services Inc., substantially on the terms set out in Attachment 2 and such other terms as may be satisfactory to the Acting General Manager, Solid Waste Management Services, and in a form satisfactory to the City Solicitor, and that the Acting General Manager, Solid Waste Management Services be authorized to execute the Biogas Utilization Agreement on behalf of the City.
  3. City Council authorize, in the event that the Lease Agreement and the Biogas Utilization Agreement referred to in Parts 1 and 2 above are not executed by January 31, 2012, the Acting General Manager Solid Waste Management Services, in his sole discretion, to terminate negotiations with Toronto Hydro Energy Services Inc., and to issue the appropriate procurement document, in consultation with the Director, Purchasing and Materials Management Division, for a contract to develop and operate a system to utilize biogas from the Green Lane Landfill.
  4. City Council authorize the City to enter into any other related agreement(s) as may be necessary to give effect to Part 1 above, on terms as may be deemed appropriate by the Chief Corporate Officer, and in a form satisfactory to the City Solicitor, and that the Chief Corporate Officer be authorized to execute any such agreements on behalf of the City.

5. City Council authorize the City to enter into any other related agreement(s) as may be necessary to give effect to Part 2 above, on terms satisfactory to the Acting General Manager, Solid Waste Management Services, and in a form satisfactory to the City Solicitor, and that the Acting General Manager, Solid Waste Management Services be authorized to execute any such agreements on behalf of the City.
6. City Council authorize the Chief Corporate Officer, in consultation with the Acting General Manager, Solid Waste Management Services, to provide consent on behalf of the City, as landlord, for the submission of any applications required to be submitted by Toronto Hydro Energy Services Inc. for land use approvals in respect of the lands to be leased.
7. City Council authorize the Acting General Manager, Solid Waste Management Services to provide consent on behalf of the City for the submission of any applications to the Ontario Ministry of Environment for any required environmental approvals.
8. City Council authorize the Chief Corporate Officer to administer and manage the Lease Agreement, including the provision of any consents, approvals, notices and notices of termination provided that the Chief Corporate Officer may, at any time, refer consideration of such matters (including their content) to City Council for its determination and direction.
9. City Council authorize the Acting General Manager, Solid Waste Management Services to administer and manage the Biogas Utilization Agreement, including the provision of any consents, approvals, notices and notices of termination provided that the Acting General Manager, Solid Waste Management Services may, at any time, refer consideration of such matters (including their content) to City Council for its determination and direction.
2. The Acting General Manager, Solid Waste Management Services be authorized, in consultation with the Director, Purchasing and Materials Management Division to solicit bids for alternative uses of the biogas from the Green Lane Landfill for purposes other than the production of electricity for supply to the electricity grid in the event that Toronto Hydro Energy Services Inc., is unable to obtain a contract from the Ontario Power Authority under the Feed In Tariff program prior to December 31, 2012.
3. City Council amend Executive Committee Item EX43.8, as adopted by City Council at its meeting held on May 11 and 12, 2010, by deleting Attachments 1, 2 and 4 thereof and replacing them with Attachments 1 and 2 of this report.

## **Financial Impact**

THESI will design, construct, own and operate the entire biogas utilization system and will incur all associated capital and operating expenses over the term of the Lease Agreement and the Biogas Utilization Agreement.

These agreements will generate revenue for the City and will not result in additional capital or operating costs for the City.

The City will lease land to THESI for the purpose of locating the generation plant component of the biogas utilization system. The City will also supply biogas to THESI which THESI will convert into electricity.

### Lease Revenue

The total expected lease payments over the 25-year initial term of the agreement are unchanged from the previous estimate (see Decision History).

THESI will lease approximately 0.5 hectare (or 53,820 square feet) of vacant buffer land of the Green Lane Landfill ("GLL") from the City for an initial term of 25 years. In the first year of the term, the annual rent payment will be approximately \$32,292.00. The annual rental payment will be increased by 2.5 percent for each of the subsequent years of the term and the 10 year extension term, if THESI exercises its option to extend the term. The estimated total rental payment revenue for the term and the extension term is \$1,774,000.00. THESI will be responsible for all capital and operational costs, so that the lease will be fully net and carefree to the City.

### Biogas Royalty Revenue

The previous estimate of the total expected royalty payment for the sale of biogas over the 25-year term of the agreement was \$ 42,679,000.00. The total expected royalty payment is now \$35,152,000.00. The reduction of \$7,527,000.00 is due to the delayed start of commercial operations.

Under the Biogas Utilization Agreement, operation of the biogas utilization system is expected to begin no later than January 2015. In each month of the term thereafter, THESI will pay to the City a percentage (the "royalty percentage") of the gross revenue received by THESI from the sale of electricity produced from biogas supplied by the City.

The monthly royalty payment amounts are expected to vary over the term due to changes in the gross revenue received by THESI from the sale of the electricity and also due to the tiered structure of royalty percentages.

The amount of electricity which THESI will be able to sell will vary due to changes in the quantity and quality of biogas supplied by the City, and possibly also due to unplanned interruptions in THESI's ability to utilize the biogas or sell the electricity.

The Biogas Utilization Agreement will establish four tiers of royalty percentages based on the quantity and methane content of the biogas supplied by the City. The highest royalty percentage will apply when the quantity of biogas supplied by the City is near its expected maximum amount and the methane content of the biogas is 45 per cent by volume or greater. Lower royalty percentages will apply when lesser quantities of biogas are supplied or when the methane content of the biogas is less than 45 per cent by volume.

The City and THESI have reviewed a financial model of the Biogas Utilization Agreement which applies the variable royalty payment structure described above to the expected implementation schedule of the biogas utilization system and to future expansion of the electricity generation capacity of the system. Based on this analysis, the annual totals of the monthly royalty payments due to the City, beginning in 2015 and over the remainder of the term of the Agreement, are expected to vary from approximately \$911,000.00 to \$2,100,000.00. The estimated total variable royalty payment for the term excluding the extension period is \$35,152,000.00.

The rental income and variable royalty payments to the City over the term are summarized in Table 1.

Estimates of biogas volume derive from a study commissioned by Solid Waste Management Services in 2009, which considered the quantities and types of waste expected to be disposed of at the GLL over its remaining life. Electricity sales were calculated assuming normal losses when converting biogas into electricity and the electricity purchase price currently offered by the Ontario Power Authority's (OPA) Feed In Tariff (FIT) Program applied to all electricity produced from the biogas over the term. The Estimated Electricity Sales \$ have been reduced from previous estimates to reflect the delayed start of commercial operations. The average royalty percentage reflects the top tier royalty percentage which is considered to be reasonable over the term based on current landfill gas production.

Table 1: Summary of Rental Income and Variable Royalty Payments

Year	GLL Rental Income \$ (x 1000)	Estimated Biogas Volume (million cubic metres)	Estimated Electricity Sales \$ (x 1000)	Average Royalty Percentage	Estimated Royalty Amount \$ (x 1000)	Total Estimated City Revenue \$ (x 1000)
2012 to 2016 <sup>1</sup>	\$170	107	\$19,327	15%	\$2,899	\$3,069
2017 to 2021	\$192	308	\$56,372	15%	\$8,456	\$8,648
2022 to 2026	\$217	368	\$68,730	15%	\$10,309	\$10,527
2027 to 2031	\$246	348	\$66,265	15%	\$9,940	\$10,186
2032 to 2036 <sup>2</sup>	\$278	127	\$25,704	14%	\$3,548	\$3,826
<b>Total 25 Year Term</b>	<b>\$1,103</b>	<b>1,259</b>	<b>\$236,398</b>	<b>15%</b>	<b>\$35,152</b>	<b>\$36,255</b>
2037 to 2046 <sup>3</sup>	\$671	TBD	TBD	TBD	TBD	TBD
<b>Total Term Plus Extension</b>	<b>\$1,774</b>	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>

Notes:

1. Includes electricity sales in years 2015 to 2016 only. Construction of the biogas utilization system will occur in years 2013 and 2014. Sale of electricity from the generation plant is expected to begin in 2015.
2. Includes electricity sales in years 2015 and 2034 only. The 20-year term of a FIT program contract for electricity from the biogas utilization system would expire in 2034. A different and unknown purchase price will apply to electricity sold in year 2035 and beyond. Electricity revenues expected in 2035 and beyond cannot be estimated at this time and are 'To be Determined' and are therefore excluded from this table.

The royalty percentage payments will be allocated to the operating budget of the Solid Waste Management Services under the item Disposal Services, Green Lane Landfill account SW0901. Any resultant net operating surplus will be contributed to the Green Lane Landfill Reserve Fund. The rental revenue payments will be allocated to the operating budget of the Real Estate Services Division under the cost centre FA2490.

Upon early termination of the Lease Agreement and the Biogas Utilization Agreement for any reason, or termination upon expiry of the Term or any extension thereof, the City shall have the option to purchase all or part of the Biogas utilization system for a fair market price.

The Deputy City Manager and Chief Financial Officer has reviewed this report and agrees with the financial impact information.

## **DECISION HISTORY**

At its meeting of May 11 and 12, 2010, City Council adopted, as amended, the Recommendations in Item EX43.8 of the Executive Committee, authorizing the City to enter into a lease agreement and a biogas utilization agreement with Toronto Hydro Energy Services Inc. and Ontario Plants Propagation Ltd, for a project to utilize the biogas from the GLL, substantially on the terms and conditions set out in Attachments 1 and 2 of the report.

<http://app.toronto.ca/tmmis/viewPublishedReport.do?function=getCouncilDecisionDocumentReport&meetingId=3289>

## **ISSUE BACKGROUND**

Electricity from the proposed biogas utilization system described in Executive Committee Item EX43.8, adopted, as amended, by City Council at its meeting on May 11 and 12, 2010, was to be supplied to the electricity grid at a connection point located in the West of London transmission area. THESI/OPPL have been unable to secure a FIT contract from the OPA for the sale of electricity from the proposed biogas utilization system for this original connection point To date, the City has not entered into a Lease or Biogas

Utilization Agreement with THESI/OPPL as a result of the constraint on new electricity generation projects in the West of London.

The OPA has delayed awarding new FIT contracts for projects in the West of London transmission area pending completion of an Economic Connection Test ("ECT") which will be initiated later this year and completed within 12 months.

The OPA has an inventory of FIT contract applications for projects in the West of London transmission area totalling approximately 2,500 MWe of generation capacity. However, the electricity transmission system in this area can accommodate only a limited amount (estimated to be 300 MWe) of new generation capacity.

The OPA will use the results of the ECT to determine how to allocate the available connection capacity and also to direct future upgrades to the transmission system which may take several years to implement.

Realizing the delays and uncertainties of securing a FIT contract to connect in the West of London transmission area, THESI has revised the design of the biogas utilization system such that the new point of connection with the electricity grid is in the East of London transmission area, and is not subject to the capacity limitation affecting the original connection point. The new connection point will enable THESI to move forward with a FIT contract after the ECT process is complete.

The new connection point is at a greater distance from the GLL than was the original connection point, which has added to the capital cost of the biogas utilization system. To offset cost increases, the redesigned system locates all electricity generation capacity at the GLL buffer lands and thereby avoids the cost of constructing a biogas pipeline to OPPL's location. Therefore, THESI alone will enter into the agreements with the City.

The delay in securing a FIT contract and the resulting need to redesign the biogas utilization system makes it necessary to amend the City's authority to enter into Biogas Utilization and Lease Agreements. The key changes to the authorities as recommended in this report are:

- THESI alone will enter into the agreements with the City;
- early termination and project milestone dates are extended; and,
- the description of the biogas utilization system and the components to be located at the GLL is revised.

THESI and the City understand that securing a FIT contract on terms currently available is subject to future FIT program changes and, therefore, remains a project risk. THESI appreciates that the City needs to investigate biogas utilization alternatives to the production of electricity for supply to the electricity grid in case THESI is unable to enter into the Lease or Biogas Utilization Agreement with the City or in the case that THESI cannot secure the FIT contract.

## COMMENTS

Solid Waste Management Services and Real Estate Services, assisted by Legal Services, have negotiated the commercial terms outlined in Attachments 1 and 2 which will form the basis for the negotiation of the Lease Agreement and the Biogas Utilization Agreement with THESI for the construction and operation of the biogas utilization system proposed by THESI. The commercial terms outlined in Attachments 1 and 2 are considered to be fair, reasonable and reflective of market value.

The biogas utilization system proposed by THESI has 3 main components: (1) a 10 MWe electricity generation plant to be constructed on the GLL buffer lands and to be expanded to up to 16 MWe if warranted by increased landfill gas volumes; (2) a new distribution line approximately 34 km in length through which electricity from the generation plant would be supplied to the electricity grid; and (3) a new transformer sub-station to be located at the point of connection to the electricity grid.

THESI will lease an area of the GLL buffer lands of approximately 0.5 Ha (or 53,820 square feet) as shown in Attachment 3 of EX43.8, as adopted by City Council at its meeting held on May 11 and 12, 2010, and also attached to this report, on which they will locate the generation plant.

THESI will enter into an agreement with the OPA under the current FIT program to sell the electricity generated by the 10 MWe generation plant. THESI will also enter into a separate agreement under the current, or the successor or preferred alternative to, the FIT program to sell the electricity generated by a future up to 6 MWe expansion of the generation plant.

The term of both the Lease Agreement and the Biogas Utilization Agreement is twenty-five (25) years to allow for the design and construction of the biogas utilization system, a 20-year operating period as required by the OPA's FIT program, and also for future decommissioning, if necessary. The Agreements will both provide for one ten (10) year extension on the same terms and conditions, except that there will be no further right to extend the Agreements beyond the expiry of the extended term and, since the FIT contract associated with the generation plant will have expired, the royalty payment structure will be revised by mutual agreement.

The City's real estate disposal process, as set out in Chapter 213 of the City of Toronto Municipal Code, stipulates that prior to a sale transaction (which includes a lease of 21 years or longer) being approved, the land must be declared surplus, in accordance with City policy. The lands to be leased to THESI were declared surplus on April 21, 2010 (DAF 2010-063), with the intended manner of disposal to be by way of a long term ground lease (more than 21 years) to THESI/OPPL or a wholly-owned and controlled corporation related thereto.

The commercial terms of the Lease Agreement and the Biogas Utilization Agreement are subject to approval by THESI's Board.

To address the risk that the OPA may not award a FIT contract for the biogas utilization system under existing or better terms, the City will undertake to investigate biogas utilization alternatives to the production of electricity for supply to the electricity grid. The scope of the investigation would include projects to produce gas or liquid energy products for sale and the direct use of the biogas to provide electricity and/or heat for a new industrial facility. Since such projects would require land in addition to the supply of biogas, potential lease of GLL buffer lands would be considered. The means of investigation would be determined in consultation with the Director, Purchasing and Materials Management Division and may include the issuance of a Request for Expressions of interest and/or Request for Proposals. Staff will report the results of the investigation if THESI is unable to secure a FIT contract by December 31, 2012.

## **CONTACT**

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## **SIGNATURE**

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Vincent Sferrazza  
Acting General Manager  
Solid Waste Management Services

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Bruce Bowes, P. Eng.  
Chief Corporate Officer

## **ATTACHMENTS**

- Attachment 1 – Commercial Terms of Lease Agreement at Green Lane Landfill Site
- Attachment 2 – Commercial Terms of Biogas Utilization Agreement at Green Lane Landfill Site
- Attachment 3 – Location of Proposed Leased Lands