

TO:	CHAIR AND MEMBERS CIVIC WORKS COMMITTEE MEETING ON OCTOBER 4, 2016
FROM:	JOHN BRAAM, P.ENG. MANAGING DIRECTOR, ENVIRONMENTAL & ENGINEERING SERVICES & CITY ENGINEER
SUBJECT:	LANDFILL GAS UTILIZATION UPDATE AND NEXT STEPS

RECOMMENDATION

That, on the recommendation of the Managing Director, Environmental & Engineering Services and City Engineer and on the advice of the Director, Environment, Fleet and Solid Waste the following actions **BE TAKEN** with respect to landfill gas utilization:

- a) the Civic Administration **BE AUTHORIZED** to prepare an application to the Independent Electricity System Operator's Feed-In Tariff Program for a 500 kilowatt landfill gas power plant which will use about 20 percent of the annual landfill gas produced;
- b) Civic Administration **BE AUTHORIZED** to undertake all administrative acts in regard to the Feed-In Tariff Program application;
- c) the attached proposed By-law (Appendix 3) **BE INTRODUCED** at the Municipal Council Meeting of October 11, 2016 to approve and authorize the execution of documents with respect to Prescribed Forms for participation in Ontario's Feed-In Tariff program between the Independent Electricity System Operator and The Corporation of the City of London;
- d) Civic Administration **BE DIRECTED** to examine renewable natural gas production as the preferred option for utilization of the remaining volume of landfill gas at the W12A Landfill; and
- e) Civic Administration **BE DIRECTED** to report back to the Civic Works Committee on the options for the production of renewable natural gas from landfill gas.

PREVIOUS REPORTS PERTINENT TO THIS MATTER
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Relevant reports that can be found at www.london.ca under City Hall (Meetings) include:

- Landfill Gas Utilization Status of Opportunities and Next Steps, March 29, 2016 meeting of the Civic Works Committee (CWC), Agenda Item #16.
- Landfill Gas Utilization - Request for Qualifications, August 25, 2014 meeting of the CWC, Agenda Item #20.
- Landfill Gas Utilization - Next Steps – Preparing for a Feed-In-Tariff Submission, March 18, 2013 meeting of the CWC, Agenda Item #12.
- Update on Landfill Gas Utilization, December 17, 2012 meeting of the CWC, Agenda Item #4.
- Request for Expressions of Interest for Partnership in Biogas Utilization, September 27, 2011 meeting of the Community and Neighbourhoods Committee (CNC), Agenda Item #11.

STRATEGIC PLAN 2015-2019

Municipal Council has recognized the importance of solid waste management, climate change and other related environmental issues in its 2015-2019 - Strategic Plan for the City of London ([2015 – 2019 Strategic Plan](#)). With respect to this CWC Report, three of the four Areas of Focus address utilization of landfill gas generated at the W12A Landfill:

Building a Sustainable City

- Strong and healthy environment

Growing our Economy

- Local, regional, and global innovation

Leading in Public Service

- Excellent service delivery

BACKGROUND

PURPOSE

The purpose of this report is to:

- provide the business case for a 500 kilowatt (kW) electrical generator under the Feed In Tariff (FIT) program at the W12A Landfill site; and
- update the Civic Works Committee and Council on recent developments with respect to the potential utilization of landfill gas from the W12A Landfill.

CONTEXT

April 5, 2016 Council Direction

At its April 5, 2016 meeting, Council adopted the following recommendation with respect to the landfill gas utilization at the W12A Landfill:

- a) *the Civic Administration **BE DIRECTED** to continue to explore all opportunities for the advantageous use of landfill gas;*
- b) *in the meantime, the Civic Administration **BE AUTHORIZED** to pursue the following options for the use of landfill gas; it being understood that the list of options available to the City of London may expand as a result of the action directed in a), above:*
 - i) *Option 1: Prepare a Business Case to install a 500 kilowatt (0.5 megawatt) generator for electricity under the Feed-in-Tariff program offered by the Independent Electricity System Operator (IESO)*
 - ii) *Option 2: Review the potential to respond to a future Large Renewables Procurement 2 Request for Qualifications (LRP2 RFQ) for the purpose of generating electricity through a long term contract with IESO with a potential timeframe of mid to late 2017*
 - iii) *Option 3: Utilize landfill gas as an energy source to be used by a potential business to be located on City-owned lands near the Waste Management Resource Recovery Area*
 - iv) *Option 4: Utilize landfill gas as an energy source to be used as a feedstock for a future resource recovery technology to be established within the Waste Management Resource Recovery Area*
 - v) *Option 5: Utilize landfill gas to create renewable natural gas (RNG) as an energy source; and*
- c) *the Civic Administration **BE DIRECTED** to prepare a Business Case for Option 1 (500 kilowatt generator) and report back to Civic Works Committee in June 2016 noting the business case will include how Option 1 impacts Options 2 through 5 as noted in parts ii) through v) above.*

Landfill Gas Collection and Flaring at the W12A Landfill

Landfill gas is produced by the anaerobic decomposition of organic waste material within the landfill, which typically consists of about 50 percent methane. Methane is a potent greenhouse gas (GHG) with a global warming potential 25 times greater than carbon dioxide. By burning the methane at the landfill site and converting it to carbon dioxide reduces its global warming potential by about 95%.

The City of London has been collecting and flaring landfill gas on a voluntary basis since 2004. Landfill gas collection and destruction is now a provincial regulatory requirement for larger landfills like W12A, which came into full effect on June 2016.

Since 2004, the landfill gas collection and flaring system has burned over 35,000 tonnes of methane, which has avoided the release of an equivalent 876,000 tonnes of carbon dioxide. In 2016 alone, the flare has avoided the release of an equivalent 93,000 tonnes of carbon dioxide as of September 24th – the equivalent of taking 31,000 cars off the roads.

Previous Work on Landfill Gas Utilization Projects

There have been several attempts to develop a landfill gas utilization project at the W12A Landfill. During this time, City staff have submitted complete details as part of various application processes and continue to meet all the technical requirements for the gas utilization projects. The challenges beyond City control have been:

- Regional electricity transmission constraints,
- Electricity transformer station capacity constraint,
- The Ontario Energy Board's previous rejection of a proposal for a renewable natural gas (RNG) premium payment proposed by Enbridge and Union Gas; and
- Changing rules and application processes by the former Ontario Power Authority (OPA) for renewable electricity generation.

DISCUSSION

The details below under Recommended Next Steps for landfill gas utilization are derived from two appendices:

- Appendix A Background, Overview and Current Analysis of Landfill Gas Utilization Options
 - Factors Influencing Landfill Gas Utilization
 - Overview of Landfill Gas Utilization Options
 - Recent Announcements that will Influence Landfill Gas Utilization Options
 - Status - Implications of Announcements and New Technical Information
- Appendix B Business Case for a 500 kW Landfill Gas Power Plant
 - Overview
 - Preliminary Capital Cost Estimate
 - Financial Analysis Summary
 - Advantages, Possible Challenges and Environmental Benefits of Landfill Gas Power Production at the W12A Landfill
 - Risks Analysis
 - Staffing

Recommended Next Steps

Based on the analysis in Appendices A and B, it is recommended that staff initially pursue a FIT 5 application for a 500 kilowatt landfill gas power plant in the near term, given this program is available now. This would produce enough renewable electricity to power over 400 homes per year.

The table below summarizes the key factors in the business case (see Appendix B):

	Worst Case	Expected	Best Case
Capital cost	\$4,300,000	\$3,800,000	\$3,100,000
Average annual operating cost ¹	\$355,000		
Annual capacity factor (operating time)	80%	85%	87%
Average annual revenue (approximate) ²	\$676,000	\$724,000	\$736,000
Simple payback time (years)	13	10	8

Notes:

- (1) This is the average annual operating and maintenance cost over the 20 year period accounting for inflation
- (2) This is the average annual revenue generated over the 20 year period accounting for the FIT 5 Tariff CPI escalation factor

Over the 20-year life of the contract, the project financials using the expected case suggest the following:

- \$3.8 million in capital investment is required
- \$7.1 million in operating and maintenance costs will occur
- \$14.5 million in revenues will accrue to the City of London

The FIT 5 application window opens up on October 31, 2016 and closes on November 18. This application window is only 15 business days long. It is important to note that FIT 5 program has a competitive application process based on a points-based system where applicants are awarded points based on criteria such as voluntary FIT price reduction, municipal support, municipal hosting, and aboriginal participation. Therefore, there is no guarantee that the City will be awarded a FIT 5 contract.

It is estimated that the 500 kilowatt power plant will use about 320 cubic metres per hour (200 cfm) of landfill gas – about 20 percent of currently-available landfill gas. This would leave about 1,300 cubic metres per hour (800 cfm) of landfill gas for RNG production.

It is expected that Ontario gas utilities will be wanting to develop RNG projects in a timely fashion. As part of the ongoing work, City staff will examine options for the development and production of RNG at W12A Landfill, including but not limited to the following:

- the sale of landfill gas utilization rights to Union Gas (or other private sector developer),
- a partnership arrangement with Union Gas (or other private sector developer) for the joint ownership of a RNG production facility, and
- a RNG facility wholly-owned by the City of London.

The options above could also include:

- developing this project as early as possible and sell RNG into US markets on an interim basis until the Ontario RNG market has been established, and
- sizing the RNG facility to accommodate biogas from the anaerobic digestion of source-separated organics, (mixed waste) facility-separated organics or other waste conversion technologies

ACKNOWLEDGEMENTS

This report was prepared with assistance from Laurie Green, Financial Business Administrator; Alan Dunbar, Manager, Financial Planning & Policy; Wesley Abbott, Project Manager and Andre Joseph, Manager, Solid Waste Engineering & Planning.

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- Appendix 1 Background, Overview and Current Analysis of Landfill Gas Utilization Options
- Appendix 2 Business Case for a 500 kW Landfill Gas Power Plant
- Appendix 3 Draft By-Law for FIT 5 Document Execution

Appendix 1

Background, Overview and Current Analysis of Landfill Gas Utilization Options

Factors Influencing Landfill Gas Utilization

There are a number of internal and external factors that influence future opportunities for landfill gas utilization:

- The W12A Landfill is expected to reach capacity by 2025 and an Environmental Assessment is underway to look at London's future waste management options including waste disposal.
- It is difficult to predict the amount of landfill gas that will be available for use in the future until the Environmental Assessment is finished. For example:
 - The size, capacity and type of operation at the W12A Landfill are unknown at this point in time. The amount of organics going to the landfill could be reduced (e.g., introduction of an organics management program such as a Green Bin program) or increased (e.g., more garbage from other sources with organic content).
 - There may be facilities sited in the Waste Management Resource Recovery Area close to the landfill that will produce biogas (e.g., anaerobic digester) that could be combined with landfill gas.

Currently, the landfill gas collection system is capturing about 1,900 cubic metres per hour (1,100 cubic feet per minute). This is expected to expand to about 2,500 cubic metres per hour (1,500 cubic feet per minute) when the next expansion of the landfill gas well field is completed at the end of 2016.

Overview of Landfill Gas Utilization Options

There are three general alternatives for landfill utilization. These are:

Power Generation (Options 1 and 2 of Council Recommendation)

The most common use for landfill gas is power generation. The collected landfill gas is chemically scrubbed to remove impurities such as siloxanes that can cause damage to the internal combustion engines used to generate electricity. The W12A Landfill currently creates enough landfill gas to generate approximately 2.5 to 3.0 megawatts (MW) of electricity, which could increase to as much as 3.5 to 4.0 megawatts. Over a year, a 3.5 MW power plant could produce about 27,600 megawatt-hours (about 100,000 gigajoules) of electrical energy (i.e., electricity used by approximately 3,300 homes per year). Sometimes, waste heat from electrical power generation can be recovered and used in a nearby facility. This is called co-generation when both heat and power are produced.

Direct Utilization by Industry (Options 3 and 4 of Council Recommendation)

Landfill gas can be burned directly by boilers to produce heat. This only works if there is a nearby facility that needs heat throughout the year. There is the potential for the landfill gas to be used by a new business locating in the Resource Recovery area beside the landfill or in the City owned lands beside the Resource Recovery area.

Renewable Natural Gas (Option 5 of Council Recommendation)

Landfill gas is approximately 50 percent methane gas that can be upgraded to pipeline-quality renewable natural gas (RNG) at 95 percent methane. Gas separation technology is used to strip out the carbon dioxide component of landfill gas, after which the pipeline quality RNG is injected into Union Gas's pipelines for use by homes, businesses, transportation fleets, and industry. There are no special upgrades to furnaces, water heaters and other equipment needed to use RNG.

The W12A Landfill currently creates enough landfill gas to produce approximately 800 cubic metres per hour (500 cfm) of RNG, and could increase to as much as 1,200 cubic metres per hour (700 cfm) when the next expansion of the landfill gas collection system is completed at the end of 2016. Over the year, 700 cfm of RNG could produce about 350,000 gigajoules of heat energy (i.e., natural gas used by approximately 4,200 homes per year).

The environmental benefits of RNG are greater than renewable electricity generation, since RNG injected into the pipeline directly replaces the use of fossil fuel natural gas, whereas about 90 percent of Ontario's electricity from emissions-free sources such as nuclear, hydro-electric, wind and other renewables.

Recent Announcements that will Influence Landfill Gas Utilization Options

Since Council direction was provided on April 5, 2016 there have been a number of provincial and industry announcements as well as new information released which have implications for any landfill gas utilization project at the W12A Landfill. These include:

May 25, 2016 Canadian Gas Association Proposes Minimum RNG Content in Natural Gas

On May 25, 2016 the Canadian Gas Association announced Canada's natural gas utilities have set a target of five percent RNG-blended natural gas in the pipeline distribution system by 2025 and ten percent by 2030.

May 26, 2016 Province Announces \$100 Million to Support RNG

On May 26, 2016 the provincial government announced they are investing up to \$100 million in greenhouse gas Cap and Trade program proceeds over four years to support the introduction of renewable natural gas.

June 8, 2016 Ontario's Climate Change Action Plan Recommends Minimum RNG Content in Natural Gas

Ontario's Climate Change Action Plan states "*Ontario intends to introduce a renewable content requirement for natural gas and provide supports to encourage the use of cleaner, renewable natural gas in industrial, transportation and buildings sectors.*" The province's Action Plan specifically refers to sources such as landfills and municipal Green Bin collection for RNG. This provides new opportunities for the utilization of landfill gas from the W12A landfill and the potential for utilization of biogas from a future Green Bin or other organics management program in London.

June 17, 2016 Net Metering now Allowed for Landfill Gas Projects

The City received new information on June 17, 2016 indicating that landfill gas projects are now eligible for "net metering". Net metering allows customers to generate electricity for their own use "behind the meter" and send any surplus power generated during low demand periods on to the local grid. At the time of billing, the surplus power provided that month is subtracted from the power drawn from the grid to determine the monthly net amount of electricity used.

July 13, 2016 Union Gas Confirms Pipeline Capacity Available for RNG from W12A Landfill

Union Gas advised the City that there was sufficient year-round downstream market demand to allow for RNG produced from landfill gas to be injected into their pipeline beside the landfill. This includes low demand periods such as mild summer days. Years earlier the City had been informed that there might be restrictions on injecting RNG into the pipeline beside the landfill during the summer (low natural gas demand) months, due to the loss of major gas-using customers such as former Ford Motor Company plant in St. Thomas.

July 20, 2016 IESO Release Documents Showing Limited Transmission Capacity for W12A Landfill

The Independent Electricity System Operator (IESO) posted two Large Renewable Procurement II connection discussion documents. These documents indicate that there is limited remaining capacity for power generated by rotating engines (approximately 0.6 megawatts) at the Wonderland Transformer Station. This is the transformer station that electricity generated at the W12A Landfill would be sent to.

August 2, 2016 Union Gas Expresses Interest in Developing RNG from W12A Landfill

Union Gas informed the City that they are interested in exploring options for direct participation in the development and production of RNG at W12A ranging from purchasing landfill gas utilization rights though to a partnership arrangement with the City and/or other private-sector partners.

August 26, 2016 IESO Posts Final Rules for FIT 5

The IESO posted final versions of the FIT 5 Rules, FIT Contract, Standard Definitions and Prescribed Forms ahead of the upcoming FIT 5 Application Period, which is scheduled to begin on October 31, 2016 and closes on November 18, 2016. FIT 5 pricing for landfill gas power is 16.8 cents per kilowatt-hour plus a 1.0 cent per kilowatt-hour Municipal Participation price adder, with an annual inflation adjustment of 50 percent of the Consumers Price Index (CPI).

Status - Implications of Announcements and New Technical Information

The above announcements and new information make electrical power generation at the W12A Landfill less attractive while the production of renewable natural gas has become more attractive as summarized in the Table below.

Option	Background	New Information	Next Steps
1: Prepare a Business Case to install a 500 kilowatt (0.5 megawatt) generator for electricity under the Feed-in-Tariff program	<p>This is the largest size of facility permitted under the FIT 5 Program</p> <p>Was considered only viable option to implement in the short term, as this was the only incentive program available at that time</p> <p>Likely cover costs but no/limited profit</p> <p>Not sure of pricing (still to be set)</p>	<p>Final FIT pricing set (17.8 cents per kilowatt-hour including the Municipal Participation price adder)</p> <p>Comcor Environmental has provided a preliminary level cost (plus/minus 15 to 20%) to construct and operate a 0.5 MW generator at the W12A Landfill (see Attachment 1 for details)</p> <p>The business case (see Attachment 2) indicates an estimated payback time of 10 years, based on the expected preliminary cost</p>	Should be pursued
2: Review the potential to respond to a future Large Renewables Procurement 2 Request for Qualifications (LRP2 RFQ)	<p>LRP1 was highly competitive</p> <p>New LRP2 being rolled out over the summer of 2016</p>	<p>IESO documents suggest transformer station short-circuit capacity continues to be a constraint (not enough capacity for a power plant larger than 500 kW)</p> <p>London Hydro believe more capacity is available, but amount of capacity unknown at this time</p> <p>Signing a 20 year commitment for annual LFG quantities will be challenging as the future operational aspects of the W12A Landfill are unknown at this time</p>	<p>Do not pursue at this time</p> <p>(unless transmission constraints are removed and evidence is provided of their removal)</p>

Option	Background	New Information	Next Steps
3: Utilize landfill gas as an energy source to be used by a potential business	Based on current information, may be viable option in the mid to long term Would be competing against price of conventional natural gas	Direct use would also benefit from carbon pricing (as an offset project)	Continue to investigate as an alternative option to RNG production
4: Utilize landfill gas as an energy source to be used as a feedstock for a future resource recovery technology	Based on current information, may be viable option in the long term would be competing against price of conventional natural gas	Direct use would also benefit from carbon pricing (as an offset project)	Continue to investigate as an alternative option to RNG production
5: Utilize landfill gas to create renewable natural gas (RNG)	US markets currently exist and will pay a premium for RNG (up to \$20/gigajoule compared to natural gas pricing of \$4/ gigajoule) but long term contracts are not available (typically less than 4 years) Capacity of nearby Union Gas pipeline was not known previously	Ontario market is being created, likely through mandated RNG content in pipeline gas Price premium for RNG is expected through Cap & Trade revenue and/or gas utilities paying a premium to meet RNG content requirements Union Gas pipeline capacity has been confirmed Union Gas has expressed interest in producing RNG from W12A's landfill gas	Continue to pursue

Appendix 2

Business Case for a 500 kW Landfill Gas Power Plant

Overview

This Business Case is based on the premise that the City of London would enter into a 20 year Ontario Power - Feed-In Tariff (FIT 5) program contract for the design, construction and operation of a 500kW Landfill Gas Power Plant at the W12A Landfill.

The power plant will be fuelled by landfill gas produced from the natural decomposition of organic waste at the landfill. Approximately 20% of the landfill gas (gas) produced annually at the landfill will be used for power production. Currently 100% of the gas collected at the landfill is voluntarily flared to reduce Greenhouse Gas (GHG) emissions.

Capital cost and technical details for the Business Case have been prepared by Comcor Environmental Ltd. Founded in 1985, Comcor is recognized as a specialist in the engineering, design, testing, approval, construction, operation & maintenance and monitoring of landfill gas collection, flaring and utilization systems. Senior management have been involved with landfill gas collection, flaring and utilization systems since the early 1980s.

Comcor has undertaken a variety of landfill gas recovery services for the City of London including the ongoing operation, maintenance and monitoring of the landfill gas flare and gas well field since 2004.

Preliminary Capital Cost Estimate

Comcor has prepared a Preliminary Level Cost to Construct and Operate a 500 kW Generator at the W12A Landfill (Attachment 2.1) of \$3.8 million (cost estimate accurate to between +/- 15 to 20%). The details are found in Attachment 2.1. This amount has been carried forward as the “expected case” for the Financial Analysis. Best case and worst case scenarios are also presented below.

Financial Analysis Summary

Capital Cost ¹	\$3,800,000 (Expected Case)		
Sensitivity Factor ² (Possible Capital Cost Fluctuation)	+/- 20% (Factored into Best and Worst Case)		
Average annual operating cost ³	\$355,000		
Average annual revenue ⁴	\$676,000	\$724,000	\$736,000
Return On Investment	Expected Case	Best Case	Worst Case
Simple Payback (Years)	10	7	12
Net Present Value over 20 Years	\$1,600,000	\$2,400,000	\$400,000
20 year Internal Rate of Return (IRR)	8%	11%	4%

Notes:

1. Preliminary cost estimate prepared by Comcor Environmental Ltd. (Attachment 2.1)
2. A capital cost confidence range of +/-20% was applied to the estimate to account for uncertainties in the contractor rates, as well as, fluctuation in the Canadian - US dollar exchange rate.
3. This is the average annual operating and maintenance cost over the 20 year period accounting for inflation.
4. This is the average annual revenue generated over the 20 year period accounting for the FIT 5 Tariff CPI escalation factor.

Advantages, Possible Challenges and Environmental Benefits of Landfill Gas Power Production at the W12A Landfill

Landfill gas power generation is a proven technology. It is a common method used to reduce greenhouse gases, generate power and is a common feature of both municipal and private landfills across North America and Europe. The advantages, possible challenges and environmental benefits associated with utilizing landfill gas for power production at the W12A Landfill are outlined in the tables on the next page.

Advantages	Possible Challenges
1. Provides for a better use of a resource that is currently only flared.	Infrastructure may need to be augmented or relocated as a result of possible landfill expansion or further use of the remaining landfill gas stream
2. A reduction in GHG emissions through efficient use of gas	Landfill gas supply is dependent on landfill waste stream
3. Enclosed, unencumbered operating footprint	Reduces volume of landfill gas for future Renewable Natural Gas (RNG) production projects
4. Available market for green energy power in Ontario with 20 year guaranteed pricing	

Environmental Benefits			
	Expected Case	Best Case	Worst Case
Electricity Generated (kWh)	3,720,000	3,810,000	3,500,000
Equivalent Homes Powered	450	460	420
GHG Emission Reductions (tonnes/y)	210	220	200

Risks Analysis

A risk analysis was completed as a component of the business case. The analysis examined the potential of external and internal factors that would either delay or render the project unfeasible. The risks were rated based on the probability of occurrence, as well as, the severity of impact to the project. A summary of the risk analysis is presented in table below:

Risk		Probability / Severity
1	FIT 5 is a point-based program. The W12A Landfill project will be competing for capacity with other green projects (e.g., Aboriginal solar energy farm).	Low / Medium
2	A potential future RNG project at the W12A landfill may complicate facility and gas extraction well field operation.	Low / Medium
3	Fluctuations in Canadian – US dollar exchange rate may affect project cost.	Low / Low
4	Construction of facility may be delayed as a result of delay in FIT 5 contract award or contractor availability.	Low / Medium

All risks are considered to have a low to medium probability and severity and are considered unlikely to be an impediment to proceeding with this project.

Staffing

There will be no impact to staffing levels at the W12A Landfill as a result of this project. The construction, operation and maintenance of the 500 kW Landfill Gas Power Plant will be undertaken by a third-party contractor. The financial analysis summary above includes an estimate of the operating cost of the facility by a third-party contractor over a 20-year period.

	Task	Units	Quantity	Unit Cost	Total Task	Sub-Total
E	SYSTEM COMMISSIONING					
E1	Testing	L.S.	1	\$25,000	\$25,000	
E2	Commissioning	L.S.	1	\$50,000	\$50,000	
						\$75,000
F	APPROVALS/ENGINEERING					
F1	TSSA Approval	L.S.	1	\$10,000	\$10,000	
F2	MOECC Approval (REA)	L.S.	1	\$200,000	\$200,000	
F3	Civil/Electrical/Mechanical Design and Oversight	L.S.	1	\$462,000	\$462,000	
						\$672,000
					TOTAL	\$3,755,000
					(A+B+C+D+E+F):	

Notes:

Cost estimate prepared by Comcor Environmental Ltd

Cost estimate accurate to between +/- 15 to 20%.

Appendix 3

Bill No.
2016

By-law No.

A by-law to authorize and approve an application to the Independent Electricity System Operator (IESO), under the Feed-In Tariff (FIT) Program with respect to a landfill gas fuelled power plant at the City of London's W12A Landfill and to delegate authority to the General Manager of Environmental & Engineering Services & City Engineer, or their written designate, to execute all documents required as part of the application process.

WHEREAS section 5(3) of the *Municipal Act, 2001*, S.O. 2001, c. 25, as amended, provides that a municipal power shall be exercised by by-law;

AND WHEREAS section 9 of the *Municipal Act, 2001*, S.O. 2001, c. 25, as amended, provides that a municipality has the capacity, rights, powers and privileges of a natural person for the purpose of exercising its authority under this or any other Act;

AND WHEREAS it is deemed appropriate for The Corporation of the City of London (the "City") to apply to the Independent Electricity System Operator (IESO) Feed-In Tariff (FIT) program for a 500 kilowatt power plant fuelled by landfill gas from the City's W12A landfill at 3502 Manning Drive;

AND WHEREAS the Municipal Council deems it appropriate to authorize the General Manager of Environmental & Engineering Services & City Engineer, or their written designate, to execute all documents required as part of the application process;

NOW THEREFORE the Municipal Council of The Corporation of the City of London enacts as follows:

1. An application by The Corporation of the City of London to the Independent Electricity System Operator (IESO), under the Feed-In Tariff (FIT) Program with respect to a 500 kilowatt power plant fuelled by landfill gas from the City's W12A landfill at 3502 Manning Drive is hereby authorized and approved.
2. The General Manager of Environmental & Engineering Services & City Engineer, or their written designate, is hereby authorized to execute all documents required as part of the application authorized and approved in section 1, above.
3. This by-law shall come into force and effect on the day it is passed.

PASSED in Open Council October 11, 2016

Matt Brown
Mayor

Catharine Saunders
City Clerk

First reading – October 11, 2016
Second reading – October 11, 2016
Third reading – October 11, 2016