

REPORT TO GENERAL COMMITTEE - FINANCE AND ADMINSTRATIVE COMMITTEE

TO: Mayor and Members of Council

FROM: Jim Sales, Commissioner of Fire and Community Services

PREPARED BY: Victoria McGrath, Manager, Environmental Leadership

DATE OF MEETING: 2006-03-06

SUBJECT: Proceeding with a Solar Thermal District Energy Feasibility

Study with Federation of Canadian Municipalities Green

Municipal Funds

RECOMMENDATION:

That the Commissioner of Community and Fire Services and Director of Strategic Services be authorized to execute the Grant Agreement between the Federation of Canadian Municipalities, as the trustee of the Green Municipal Fund Study and The Corporation of the Town of Markham, and all such other related documentation, to receive the grant funds of up to \$50,000 as part of the Solar Thermal District Energy Feasibility Study;

And that, as approved by Markham Council on March 29, 2005, the Town's funding share (up to \$25,000) for the feasibility study will come from the Markham Environmental Sustainability Fund from account #87 2800168, conditional on Times Group Corporation contributing matching funds (\$25,000);

And that Markham Council authorize the undertaking of the study and approve the feasibility study's increased upset funding limit of \$141,250 with the addition of new funding partners, Enbridge Gas Distribution, committing \$10,000, and the Canadian Energy Partnership for Environmental Innovation, committing \$31,250, as outlined in this report;

And that Markham Council approve the feasibility study's increased scope of work of as a result of the participation of Enbridge Gas Distribution and the Canadian Energy Partnership for Environmental Innovation in the feasibility study, as outlined in this report;

And that the Commissioner of Community and Fire Services and Director of Strategic Services be authorized to execute contractual agreements with funding partners Times Group Corporation, Enbridge Gas Distribution and the Canadian Energy Partnership for Environmental Innovation in order to receive the Federation of Canadian Municipalities Green Municipal Funds grant and proceed with the Solar Thermal District Energy Feasibility Study and in a form satisfactory to the Town Solicitor.

And that Markham Council authorize staff to undertake the feasibility study and proceed with the Request for Proposal for the Solar Thermal District Energy Feasibility Study with an upset limit of \$141,250.

PURPOSE:

The purpose of this report is to request authorization to enter into an agreement with the Federation of Canadian Municipalities Green Municipal Fund (FCM GMF), Times Group Corporation, Enbridge Gas Distribution Inc. and the Canadian Energy Partnership for Environmental Innovation (CEPEI) to share the cost of preparing a feasibility study for a solar thermal district energy project in the Town of Markham and to proceed with the Request for Proposal for the feasibility study. The study will examine the technical and economic feasibility of this project for a residential development in the Town of Markham.

EXECUTIVE SUMMARY:

Council approved, in March 2005, the staff report on applying to FCM GMF for a Solar Thermal District Energy Feasibility Study. The report was based on a \$100,000 feasibility study upset limit including a \$25,000 commitment from Times Group Developments, a \$25,000 commitment from the Town of Markham and matching funds from the FCM GMF. The approval did not extend to entering into an agreement with FCM GMF to receive the grant funds. Since that original approval, two new funding partners have expressed interest in participating in the feasibility study, Enbridge Gas Distribution Inc. (EGB) and the Canadian Energy Partnership for Environmental Innovation with a combined commitment of \$41,250. As a result of participating in the feasibility study, and including natural gas-fired co-generation in the technology considered within the feasibility study, EGB and CEPEI will participate on the study steering committee and benefit from a study that promotes a replicable integrated solar thermal district energy system. In order to undertake the feasibility study and receive the FCM GMF grant funds, staff requires Council approval to proceed with the feasibility study with a new upset limit of \$141,250 and the authority to enter into contractual agreements with the funding partners.

BACKGROUND:

On March 29, 2005, Council approved a report authorizing staff to submit an application to the FCM GMF for grant funds to undertake a feasibility study for a solar thermal district energy project to an upset limit of \$100,000 (attached as Appendix 1). The Town of Markham committed to share the cost of preparing the feasibility study to an upset limit of \$25,000, from the Markham Environmental Sustainability Fund (MESF), with the caveat that the MESF be reimbursed should the Thermal Storage and Fuel Switching Pilot be approved by Powerstream as a program under the Markham Energy Conservation Office (MECO). The Thermal Storage and Fuel Switching Pilot was not approved as a program under MECO. Markham's funding was also conditional upon Times Group Corporation contributing \$25,000 matching funds.

Science Applications International Corporation Canada (SAIC) was contracted on June 27, 2005, to submit the solar thermal feasibility study application to FCM GMF on behalf of the Town of Markham and funding partner Times Group Corporation. On June 29, 2005, Times Group Corporation provided a letter to the FCM GMF confirming their intention to participate financially in the feasibility study, committing to a \$25,000 contribution, subject to the execution of an agreement between Times Group Corporation and the Town of Markham (attached as Appendix 2).

Late in the FCM GMF grant application process, in October 2005, Enbridge Gas Distribution

expressed interest in participating in the feasibility study and committed \$10,000 towards integrating natural gas fired co-generation into the technology outlined in the FCM GMF application (attached as Appendix 3). The addition of co-generation to the integrated solar thermal energy feasibility study changes the scope of work incrementally.

On November 17, 2005, FCM GMF approved the feasibility study application for a grant amount of up to \$50,000. A Green Municipal Fund Study Grant Agreement is required between FCM GMF and the Town of Markham in order to facilitate receiving and spending the grant (attached as Appendix 4). The draft Grant Agreement, dated January 10, 2006, includes requirements for contractual agreements with other funding partners, dates when the FCM GMF contributions would be deposited in the Town's bank account, conditions of the contributions and an outline of eligible costs.

Subsequent to receiving approval from FCM GMF, in January 2006, CEPEI expressed interest in participating in the feasibility study and have committed \$31,250 towards the feasibility study (attached as Appendix 5). CEPEI is a consortium of energy utilities and government which has a project fund intended to support a solar thermal project of interest to the sponsors of the alternative energy area within their research program. The current sponsors include Manitoba Hydro, Duke Energy/Union Gas, TransCanada PipeLines, SaskEnergy, Enbridge Gas Distribution, Gaz Metro and Guelph Hydro Electric Systems. CEPEI funds research to support the Canadian natural gas industry, including studies that identify and capitalize on opportunities for growth and which support initiatives of industry members such as those in the area of renewables and energy efficiency.

OPTIONS/DISCUSSION:

The March 29, 2005, Council resolution included authorization only to submit an application to FCM GMF for the Solar Thermal District Energy feasibility study, therefore, at this time, staff require the authority to:

- continue with the Solar Thermal District Energy feasibility study at the new upset limit of \$141,250;
- sign the FCM GMF Grant Agreement to receive the grant funds;
- enter into contractual agreements with the funding partners;
- proceed with the Request for Proposal for the feasibility study, and;
- proceed with undertaking the feasibility study

The FCM GMF Grant Agreement

The FCM GMF Grant Agreement lays out the obligations of the Town to receive the grant funds. Generally, these obligations include:

- When the FCM GMF contributions would be deposited in the Town's bank account;
- Conditions and modifications around the scope of work for the feasibility study;
- Eligible costs;
- Sources of funding, and;
- Reporting on the completed feasibility study.

Legal Services have been asked to review the Draft Grant Agreement prior to staff signing the

Final Agreement.

Contractual Partners

Although EGD and CEPEI have committed funds towards the feasibility study, and have, as a result, altered the ratio of the FCM GMF in terms of FCM GMF providing "matching funds", staff does not recommend revising the FCM GMF application to bring FCM GMF to matching levels due to the amount of time required to coordinate the FCM GMF application process. At this time, FCM GMF are satisfied with the incremental change in the scope of work of as a result of EGD and CEPEI participating and are comfortable with proceeding with the partners that have committed to the feasibility study.

If all funding partners do not agree to enter into contractual agreements to share the cost of the feasibility study, staff will report back to Council with that information and make recommendations around next steps.

Scope of work and Request for Proposal (RFP)

The objective of the feasibility study would be to identify opportunities for solar domestic hot water and space heating as a stand alone system, or, as part of an integrated energy system. The original scope of work included in the FCM GMF application is shown below. Based on additional funding from EGD and CEPEI, the incremental change in the scope of work is added in text shown in bold and would be the scope of work reflected in the RFP.

- 1. Domestic hot water, building heating and cooling load review

 Domestic hot water, space heating and cooling demand and loads will be estimated using available building specification and energy consumption data.
- 2. Local hydrogeological/geological study

Past drilling records and geological data will be reviewed to determine the suitability for underground thermal energy storage. Preliminary site characteristics will be estimated (such as aquifer production rate, water quality, aquifer depth, ground thermal properties).

3. Energy system architectural integration

Solar thermal collectors and visible energy system equipment need to be incorporated into the architecture of the building. Available collector mounting area needs to be maximized and collector placement needs to be harmonized with the building and site design.

4. Renewable energy solution development

Based on the energy consumption requirements and the local hydrogeological/geological information, a number of potential solar and integrated renewable energy technological options will be identified. Preferred solution(s) will be examined for potential implementation. Discussions will be held with project stakeholders to ensure the renewable energy project concept fits with stakeholder interests and vision.

4(a) As part of task 4 to identify technology options, potential integration between solar thermal, Aquifer Thermal Energy Storage (ATES) and microturbines will be explored and

conceptual system configurations will be documented. Other suitable renewable energy technologies and building energy efficiency features will be added to the application to maximize environmental benefits.

5. System conceptual design and budgetary cost preparation

The concept for the potential renewable energy system will be developed and presented to project stakeholders for comment. A system conceptual design will be developed. Conceptual system component specifications will be prepared. A budgetary cost estimate for project implementation will be constructed.

- 5(a) One or more potential energy system configurations involving a microturbine will be studied in more detail. First order system optimization (possibly with respect to microturbine size, ATES capacity and solar collector area, etc.) will be performed. System cost will be estimated.
- 6. Energy system business case development

A business model will be developed for on-going business operation for potentially feasible options with and without microturbines. Preliminary revenue and operating costs will be estimated. Project funding and financial viability will be studied. Legal and regulatory aspects of the project will be reviewed and discussed. Potential barriers, issues and challenges will be identified for resolution.

- 6(a) A detailed analysis on Greenhouse Gas emissions reduction impacts for the preferred energy system options will be carried out to document quantifiable environmental benefits. These benefits will be factored into the discussion on business case and potential project development.
- 7. Study presentation and report

A presentation will be delivered to the project partners on the process and results of the feasibility study. A draft report will be prepared and submitted for comment. A final report will be issued after incorporating comments by project partners.

Project Management

Victoria McGrath, Manager, Environmental Leadership will provide project management for the RFP and feasibility study.

CONCLUSION

This project represents an opportunity for Markham to explore the development of an integrated Solar Thermal District Energy project which will bring together Federal, Provincial, Municipal and private sector partners as a model for future partnership and renewable energy projects across Canada.

FINANCIAL CONSIDERATIONS:

As approved in the March 2005 report to Council, the Town's funding share (up to \$25,000) for the feasibility study will come from the Markham Environmental Sustainability Fund (Account #

87 2800168).

ENVIRONMENTAL/ ENGAGE 21ST CENTURY CONSIDERATIONS:

The Solar Thermal District Energy feasibility study meets the corporate objective of Environmental Focus and demonstrates the Town of Markham's commitment to protecting, enhancing and restoring Markham's natural features and green spaces as part of a vital and healthy ecosystem.

ACCESSIBILITY CONSIDERATIONS:

None

BUSINESS UNITS CONSULTED AND AFFECTED:

The following business unit was consulted in the preparation of this report:

- Finance Department
- Development Services
- Legal Services

ATTACHMENTS:

Appendix 1 - March 29, 2005, Council resolution

Appendix 2 - Times Group Corporation June 29, 2005, letter of commitment

Appendix 3 - Enbridge Gas Distribution October 21, 2005, letter of commitment

Appendix 4 - Green Municipal Fund Study Grant Agreement

Appendix 5 - Canadian Energy Partnership for Environmental Innovation February 8, 2006, letter of commitment

Stu Taylor, Director, Strategic Services

Jim Sales, Commissioner



Appendix 1

THE CORPORATION OF THE TOWN OF MARKHAM

EXCERPT FROM THE MINUTES OF THE COUNCIL MEETING HELD ON Mar 29, 2005 REPORT NO. 10 - GENERAL COMMITTEE

Report "> (11) REPORT ON FUNDING REQUEST FOR A SOLAR THERMAL DISTRICT ENERGY FEASIBILITY STUDY (5.7 & 5.0) Report

That the staff report entitled "Report on Funding Request for a Solar Thermal District Energy Feasibility Study" dated March 21, 2005 be received;

And that an application for funding be made to the Green Municipal Fund on behalf of the Town of Markham by Science Applications International Corporation Canada for a Solar Thermal District Energy Feasibility Study, as described in this report;

And that funding be approved to an upset limit of \$25,000 from the Markham Environmental Sustainability Fund to cover the Town's share of the cost of preparing the feasibility study;

And that the Town's contribution to the cost of preparing the study be conditional on Times Group Corp. contributing matching funds (25% of the cost of the study);

And that the Town of Markham Environmental Sustainability Fund be reimbursed for the study cost by Markham Energy Conservation Office if Powerstream approves the Thermal Storage and Fuel Switching Pilot.

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Appendix 2



June 29, 2005

Federation of Canadian Municipalities Green Municipal Fund 24 Clarence Street Ottawa, Ontario K1N 5P3 Via Fax: (613) 244-1515

To: Green Municipal Funds Project Officer - Barbara Gray

Subject: GMF Application Number 7268 - Participation of a Contributing Partner

Dear Ms. Gray:

This letter serves as confirmation that Times Group Corporation intends to participate financially in the integrated solar thermal energy system feasibility study for which funding is requested from the Green Municipal Funds under Application number 7268.

We understand that the Lead Applicant, The Town of Markham, has identified us as Contributing Partner in the above feasibility study and hereby confirm our funding contribution of \$25,000.00 subject to the successful execution of an agreement between Times Group Corporation and the Town of Markham.

We understand, should the Application be approved, that a contractual relationship with the Lead Applicant must be evidenced to FCM prior to any disbursements from the Funds being made to the Lead Applicant.

Sincerely,

Hashem Ghadaki

President_

c.c. Town of Markham

Deputy Mayor Frank Scarpitti

Councillor Erin Shapiro

Jim Baird

John Livey

Commissioner of Development Services

CAO

As promised by the above-mentioned members they will process our application for part of Block 49 and 50.

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ENBRIDGE

October 21, 2005

Federation of Canadian Municipalities Green Municipal Fund 24 Clarence Street Ottawa, ON K1N 5P3

Fax: (613) 244-1515

To: Mr. Sandor Derrick

Subject: GMF Application Number 7268 - Participation of Enbridge as a contributing

partner

Dear Mr. Derrick:

I am writing to confirm that Enbridge Gas Distribution Inc. will participate financially in the integrated solar thermal energy system feasibility study, currently under review by the Green Municipal Fund, Application number 7268.

Our interests in this project will be to provide an additional element to the study by involving the integration of Natural gas fired co-generation technology to those currently being evaluated.

I am pleased to confirm our funding contribution of \$10,000.00 subject to the successful execution of an agreement between Enbridge, the Town of Markham (the Lead Applicant), and other partners.

I understand, should the Application be approved, that a contractual relationship with the Lead Applicant (such as a Contribution Agreement) must be evidenced to FCM prior to any disbursements from the Funds being made to the Lead Applicant.

I would be pleased to answer any questions you may have and look forward to participating in this exciting project.

Sincerely,

Bill Chihata, P.Eng., MBA Enbridge Gas Distribution Inc.

(416) 753-6273

bill.chihata@enbrige.com

cc: Jim Grant

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GREEN MUNICIPAL FUND (GMF)

Project Title: Integrated Solar Thermal Energy System Feasibility Study

Grant Agreement

Between

THE CORPORATION OF THE TOWN OF MARKHAM

FEDERATION OF CANADIAN MUNICIPALITIES, as Trustee of the Green Municipal Fund

This document is not an offer to enter into a contract and, until executed by all parties, it is not a contract.

GMF Study no.: 7268

GRANT AGREEMENT

THIS AGREEMENT is made as of the XX day of XXXX 200%.

BETWEEN:

THE CORPORATION OF THE TOWN OF MARKHAM, a municipal corporation organized and existing under the laws of the Province of Ontario and of Canada (herein called Recipient")

-and-

FEDERATION OF CANADIAN MUNICIPALITIES, as Trustee of the Green Municipal Fund

(herein called "FCM")

WHEREAS:

- the Government of canada (herein called "GoC") and FCM have established the Green Municipal Fund (herein called GMF") to assist municipal governments to lever investments in municipal environmental projects and to interalia, provide grants for teasibility studies, assessments, sustainable community plans and field tests respecting such proposed projects.
- (b) the GoC has funded GM, which is being administered by FCM as Trustee thereof:
- (c) FCM it its capacity as Trustee of GMF, has agreed to provide the Recipient a maximum grant of fifty thousand dollars (\$50,000) for use by the Recipient solely for the feasibility study (hereinafter called "Study") referred to in this Agreement; and
- (d) the parties hereto need to provide arrangements for the administration and disbursement of the grant to, and its use by, the Recipient.

NOW THEREFORE, the parties hereby agree as follows:

ARTICLE I Definitions

Section 1.01. <u>Definitions</u>. Whenever used in this Agreement and unless the context otherwise requires, the following terms have the following meanings:

"Contribution" means each portion of the Grant Amount that is advanced from time to time by FCM to the Recipient under the terms and conditions of this Agreement;

"Eligible Costs" means those permitted expenditures described in Part 2 of Schedule A, for which the Recipient may use the Contributions;

"GAAP" means the generally accepted accounting principles which are in effect in Canada, including those published in the Handbook of the Canadian Institute of Chartered Accountants, as the same are generally applied to persons carrying on a type of business or activity similar to that of the Study;

"Grant" means the grant set forth in Article II;

"Grant Amount" means the amount to be advanced by FCM on account of the Grant up to the maximum amount set forth in Section 2002 and

"Study" means the Study described in Part 1 of Schedule A.

ARTICLE II
The Grant

Section 2.01. Grant Purpose FCM is providing the Grant to the Recipient for the sole purpose of assisting the Recipient in the performance of the Study and the Recipient hereby explicitly acknowledges and accepts the conditions and terms of the Study as described in Part 1 of Schedule.

Section 2.02 Grant Amount Subject to and in accordance with the terms and conditions of this Agreement and in reliance upon the representations, warranties and covenants of the Recipient hereinafter set forth, FCM agrees to contribute towards the Eligible Costs a grant equal to fifty percent (50%) of Eligible Costs up to a maximum grant amount of fifty thousand dollars (\$50,000).

Section 2.03. <u>Contributions</u>. FCM shall advance the Grant Amount in two (2) Contributions, as outlined in Sections 3.01 and 3.02. No Contribution will be made by FCM without it first receiving from the Recipient a completed Request for Contribution in the form of Schedule C and unless the relevant conditions are met as set forth in Article III.

ARTICLE III Conditions of Contribution

Section 3.01. <u>Conditions of First Contribution</u>. Subject to Section 6.01, FCM shall make a first Contribution in the amount of twenty five thousand dollars (\$25,000) or fifty percent (50%) of the maximum Grant Amount by no later than the XX day of XXXXX, 200% provided that the following conditions are satisfied:

- (a) the Recipient has obtained, or has made other arrangements satisfactory to FCM for obtaining, all appropriate authorizations, including any necessary by-law or resolution passed by the Recipient's Council and any necessary authorization from the Government of the Province of Ontario for undertaking the Study and receiving the Grant;
- (b) each of the Sources of Funding as described in Part 2 of Schedule A has contractually agreed on the nature and the amount and timing of its funding of the Study and FCM is satisfied with same;
- (c) the Recipient has delivered to FCM a Progress Report that describes the current status of each of the conditions and terms listed in Part 1 of Schedule A, and FCM is satisfied with the progress of the Study.
- (d) the Recipient has delivered to FCM, by no later than ten (10) days prior to the requested date of Contribution, the Request for Contribution in the form of Schedule C;
- (e) the Recipient has delivered to FCM a copy of the Certificate of Incumbency and Authority in the form of Schedule B; and
- the Recipient has delivered to FCM a summary of expenses, together with copies of supporting invoices and receipts, evidencing, in a manner satisfactory to FCM that the recipient has incurred Eligible Costs for the Study equal to or greater than two (2) times the total requested Contribution.

Each of the foregoing conditions is included for the benefit of FCM and may be waived in whole or in part at FCM's sole option by notice to the Recipient.

Each of the foregoing conditions is included for the benefit of FCM and may be waived in whole or in part at FCM's sole option by notice to the Recipient.

Section 3.02. <u>Conditions of Second Contribution</u>. Subject to Section 6.01, FCM shall make a second Contribution in the amount of twenty five thousand dollars (\$25,000) or fifty percent (50%) of the maximum Grant Amount by no later than the XX day of XX, 200%, provided that the following conditions are satisfied:

- (a) the prior Contribution has taken place;
- (b) the Recipient has maintained the authorizations referred to in subsection 3.01(a);
- (c) the Recipient has delivered to FCM, a paper and an electronic copy of a Final Report in accordance to the requirements of Schedule D GMF Final Report Submission Requirements, and that describes the status of each of

the conditions and terms listed in Part 1 of Schedule A, and FCM is satisfied with the completion of the Study;

- (d) the Recipient has delivered to FCM, by no later than ten (10) days prior to the requested date of Contribution, the Request for Contribution in the form of Schedule C; and
- (e) the Recipient has delivered to FCM a summary of expenses, together with copies of supporting invoices and receipts, evidencing, in a manner satisfactory to FCM, that the Recipient has incurred Eligible Costs for the Study equal to or greater than two (2) times the requested Contribution.

Each of the foregoing conditions is included for the benefit of FCM and may be waived in whole or in part at FCM's sole option by notice to the Recipient.

Section 3.03. Conditions of any Contribution. The obligation of FCM to make any Contribution shall also be subject to the conditions (a) that the representations and warranties confirmed or made in Article 1 shall be true on and as of the date of the relevant Contribution with the same effect as though such representations and warranties have been made on and as of the date of such Contribution, and (b) that the Recipient is not in breach of any of the covenants contained in Article V. Each of the said conditions is included for the benefit of FCM and may be waived in whole or in part at FCM's sole option by notice to the Recipient.

Representations and Warranties

Section 4.01 Representations and Warranties. The Recipient represents and warrants that

- (a) It is a only established municipal corporation incorporated under the laws of Province of Ontario and has the legal power and authority to enter into, and perform its obligations under, this Agreement and the Study;
- (b) this Agreement has been duly authorized and executed by it and constitutes its valid and binding obligations, enforceable in accordance with its terms;
- (c) neither the making of this Agreement nor the compliance with its terms and the terms of the Study will conflict with or result in the breach of any of the terms, conditions or provisions of, or constitute a default under any indenture, debenture, agreement or other instrument or arrangement to which the Recipient is a party or by which it is bound, or violate any of the terms or provisions of the Recipient's constitutional documents or any license, approval, consent, judgment, decree or order or any statute, rule or regulation applicable to the Recipient; and

(d) no litigation, arbitration or administrative proceedings are current or pending or have been threatened, and so far as the Recipient is aware no claim has been made, which is likely to have an adverse effect on the Study and the Recipient's obligations under this Agreement.

ARTICLE V Particular Covenants

Section 5.01. Affirmative Covenants. The Recipient shall:

- (a) use the Grant only for the purposes described in Section 2.01; and
- (b) conduct the Study with due diligence and efficiency and in accordance with sound financial and business practices; maintain its accounts, management information and cost control system and books of accounts adequately to reflect truly and fairly the financial condition of the Study and to conform to GAAP.

Section 5.02. Negative Covenants. Urless FCM shall otherwise agree in writing, the Recipient shall not:

- (a) use the Contributions for expenditures that are not Eligible Costs; or
- (b) make any material change to the Study

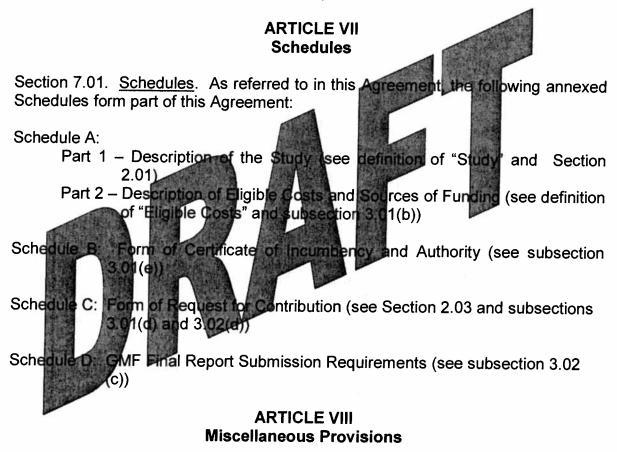
Section 5.03. Continuing Information Requirements. The Recipient shall, at its cost, provide to FCM the following information, each in a form and substance satisfactory to FCM:

- (a) prompt notice of any changes to the first or the second Contribution dates provided in Sections 3.01 and 3.02. These dates may, in FCM's sole discretion, be extended;
- (b) prompt notice of any proposed change in the nature or scope of the legal status of the Recipient and of any event or condition which might materially and adversely affect the carrying out of the Study by the Recipient or the performance of its obligations under this Agreement;
- (c) prompt notice of any litigation or administrative proceedings, together with any written legal documents as FCM may request, before any court or arbitral body or other authority which might materially and adversely affect the Study or the ability of the Recipient to perform its obligations under this Agreement and the Study; and

(d) such other information as FCM may from time to time by notice to the Recipient reasonably request.

ARTICLE VI Termination

Section 6.01. <u>Termination</u>. FCM may, on not less than thirty (30) days prior notice to the Recipient, terminate this Agreement. If this Agreement is so terminated, the liability of FCM for any unadvanced portion of the Grant Amount shall be limited to an amount that, in the sole opinion of FCM, is a reasonable contribution for the Recipient's partial performance of the Study to the date of termination.



Section 8.01. Publications

- (a) The Recipient shall be the owner of the copyrights pertaining to the reports or other documents prepared, under the terms of this Agreement or of the Study, by or on behalf of the Recipient. However, the GoC and FCM have the full right, free of all royalties or other charges, to publish or use, at any time or times, such reports and other documents, in whole or in part.
- (b) For this purpose, the Recipient undertakes to execute any document and to take all other actions that could be reasonably required of it to materialize

the Recipient's rights to the reports and other documents prepared under the terms of this Agreement or of the Study, notably any clause of assignment and transfer of rights, including copyrights and other intellectual property rights.

(c) The Recipient shall indicate a Copyright notice in at least one prominent place in the reports and other documents related to the Study, in the following manner:

Copyright © 200X, [Town of Markham]

All rights reserved. No part of this publication may be reproduced, recorded or transmitted in any form or by any means electronic, mechanical, photographic, sound, magnetic or other, without advance written permission from the owner.

(d) The Recipient shall recognize and state in an appropriate manner, as approved by FCM, the support offered by GMF concerning the Study and the contribution of the GoC to the GMF. Unless the Recipient has received written notice to the contrary from FCM, the following shall be incorporated into the reports and other documents produced by the Recipient in connection with the Study:

This Study has been produced with the assistance of the Green Municipal Fund, a Fund financed by the Government of Canada and administered by the ederation of Canadian Municipalities. Notwithstanding this support, the views expressed are the personal views of the author(s), and the Government of Canada and the Federation of Canadian Municipalities accept no responsibility for them.

(e) The provisions of Section 8.01 shall remain in force after the termination of the Agreement.

Section 8.02. <u>Communication</u>. The parties recognize the importance of having an agreed-upon communications approach to making public information on the Study and agree to cooperate in developing a communications strategy which shall be consistent with this Section. The Recipient shall provide information relating to the Study to the public and shall be responsible for replying to the public and media inquiries regarding the Study. Following the execution of this Agreement, the Recipient shall contact GMF's Community Liaison Manager at FCM to obtain guidelines for the planning of communications and the respective roles of the Recipient and of FCM in the coordination and implementation of the communications strategy. The communications strategy will give suitable visibility to the Study and related technology and to the Recipient, and to GoC as the funder of GMF. The Recipient also agrees to cooperate in providing reasonable

information on the Study to other interested parties. This may be most efficiently achieved through cooperation of the parties in developing fact sheets and related Study information. The provisions contained in this Section shall remain in force after the termination of this Agreement.

Section 8.03. Notices and Requests. Any notice, demand, request or other communication to be given or made under this Agreement to FCM or to the Recipient shall be in writing and may be made or given by personal delivery, by ordinary mail, by facsimile or by electronic mail addressed to the recipient as follows:



telephone:

(613) 241-5221, ext. 302

by facsimile:

(613) 244-1515

by electronic mail: bgray@fcm.ca

Any notice, demand, request or other communications made or given by personal delivery shall be deemed to have been made or given on the day of actual delivery thereof, and if made or given by mail, on the 3rd day (excluding Saturday, Sunday and Statutory Holidays) following the deposit thereof in the mail, and if made or given by facsimile transmission or by electronic mail, on the 1st day (excluding Saturday, Sunday and Statutory Holidays) following the transmittal thereof. If the party giving any notice, demand, request or other communications knows or reasonably ought to know of any difficulties with the postal system that might affect

the delivery of mail, such notice, demand, request or other communications shall not be mailed, but shall be given by personal delivery, facsimile transmission or electronic mail.

Section 8.04. <u>FCM's Limited Liability.</u> FCM has executed this Agreement solely in its capacity as Trustee of the GMF and not in its individual capacity. Accordingly, recourse with respect to any liability or obligation of FCM in connection with this Agreement shall be limited only to the property and assets of the GMF and neither FCM nor any director, officer, employee or affiliate thereof shall have any personal liability therefor.

Section 8.05. <u>Indemnification of FCM</u>. The Recipient shall indemnify and save harmless FCM from and against all claims, demands, actions and costs, whatsoever that may arise out of the Recipient's performance of the Study and this Agreement or by reason of any matter or thing done by the Recipient, by members of the Recipient's Study team, or by their employees or agents, whether occasioned by negligence or otherwise. Such indemnification shall survive termination of this Agreement.

Section 8.06. Further Assurances The Rec pient shall promptly execute and deliver, upon request by FCM all such other and further documents, agreements, opinions, certificates and instruments as may be reasonably required by FCM to more fully state the obligations of either party to this Agreement or to make any recording, file any notice or obtain any consent.

Section 8.07 Amendment. Any amendment of any provision of this Agreement, including the Schedules, must be in writing and signed by both parties.

Section 8.08 Choice of Language. It is the express wish of the parties that this Agreement and any related documents be drawn up and executed in English. Les parties reconnaissent avoir exigé que la présente convention et tous les documents connexes soient rédigés en anglais.

Section 8.09. <u>Governing Law</u>. This Agreement shall be governed by and construed in accordance with the laws of the Province of Ontario and the laws of Canada applicable therein.

Section 8.10. <u>Choice of Forum</u>. The parties hereto agree and intend that the proper and exclusive forum for any litigation of any disputes or controversies arising out of or related to this Agreement shall be a Court of competent jurisdiction located in the Province of Ontario, City of Ottawa.

Section 8.11. <u>Effectiveness.</u> This Agreement shall continue in force until such time as FCM has received, and notified the Recipient of its satisfaction with, the Final Report referred to in subsection 3.02(c), or until this Agreement has been terminated in accordance with Section 6.01, whichever shall first occur.

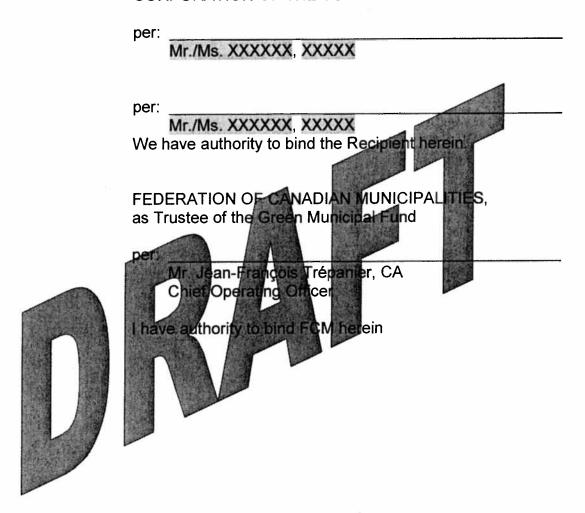
Section 8.12. <u>Successors and Assigns.</u> This Agreement shall be binding upon and inure to the benefit of the parties hereto and their respective successors and assigns, except that the Recipient may not assign or otherwise transfer all or any part of its rights or obligations under this Agreement without the prior written consent of FCM.

Section 8.13. <u>Counterparts.</u> This Agreement may be executed in two counterparts, each of which shall be deemed an original, but both of which together shall constitute one and the same agreement.



IN WITNESS WHEREOF, the parties hereto, acting through their duly authorized representatives, have caused this Agreement to be signed in their respective names as of the date first above written.

CORPORATION OF THE TOWN OF MARKHAM



SCHEDULE A

Part 1: Description of the Study (see definition of "Study" and Section 2.01)

The Town of Markham has agreed to partner with Markham District Energy Incorporated and Times Group Corporation to explore the possibility of implementing an integrated solar thermal-based community energy system into two new condominium complexes. It is believed that this would be the largest solar thermal-based domestic hot water and renewable energy technology project in Canada.

The current district energy system in the Town of Markham serves a number of customers including IBM Canada, Motorola Canada, Powerstream Inc. and Bright Horizons Daycare. A new YMCA facility and two new condominium projects will be serviced by the district energy system in 2005. It is these two new condominium buildings that are being considered in the proposed study to use the integrated solar thermal-based community energy system. The system has the potential to be sized for the 350 condominium units in the two buildings.

The six main activities to be completed within the proposed planning study include:

1. Estimating the expected building heating and cooling load:

2. Undertaking a hydrological/geological study to determine the suitability for underground thermal evergy storage.

3 Reviewing potential solar and integrated enewable energy technology ortions and examining the preferred options for potential implementation;

4 Determining appropriate Leadership in Energy and Environmental Design (LEED) Canada certification level to seek for the new buildings;

5 Peparing system conceptual design and budgetary cost preparation; and

6 Developing energy system business case.

The project will be managed by the Town of Markham's Environmental Leadership Unit and use professionals (Canadian and international) with proven experience in the proposed technology area.

- A. The study will proceed as per the description above.
- B. The Final Report shall be completed and submitted in accordance with the Schedule D GMF Final Report Submission Requirements.

Schedule A

Part 2: Description of Eligible Costs and of Sources of Funding (see definition of "Eligible Costs" and subsection 3.01(b))

Summarize the Study's Eligible Costs¹ as follows:

Item	Description	Amount
	- Building heating and cooling loads review	\$15,000
	- Local hydrogeological/geological study	\$15,000
Feasibility Study	- Renewable enery solution development	\$30,000
	- System conceptual design and budgetary cost estimate	\$25,000
	- Energy system business case development	\$15,000
Total Eligible Costs ¹		\$100,000

1. The expenditures claimed are subject to audit by FCM near completion of the Study. The amounts contributed by the GMF may vary as a consequence. No expenditure incurred prior to April 19, 2005 is permitted to be included as an Eligible Cost

Funding Percentage Table

Description	Total Funding Requested	Funding % of Eligible Costs
GMF Grant	\$50,000	50%

Sources of Funding² Table

Source ²	Source Name	Description/Notes	Amount	Date Committed	Percentage of Total Project Activity Cost
Municipal ²	Town of Markham		\$25,000		25%
Provincial ² /Territorial ²			1		
Federal ²					
Green ^¶unicipal und	Green Municipal Fund	GMF Grant	\$50,000	November 16, 2005	50%
Private Sector Financing ²	Tirnes Group		\$25,000		25%
Other ²					
Total Project	Activity Costs		\$100,000		

^{2.} For each funding source listed, you must submit evidence of the intended financial contribution.

Schedule B

Form of Certificate of Incumbency and Authority

(see subsection 3.01(e))

[LETTERHEAD OF THE RECIPIENT]

[Address] [Date]

Federation of Canadian Municipalities 24 Clarence Street Ottawa, Ontario K1N 5P3

Attention: Ms. Barb Gray

Project Officer

Ladies and Gentlemen:

Re: Green Municipal Fund – Study no. 7268

Agreement dated X, 200X ("Agreement") between the Federation of Canadian Municipalities (as Trustee/Donor) and the Corporation of the Town of Markham ("Recipient")

Certificate of Incumbency and Authority

I, the undersigned XXXX of the Recipient with the authority of its municipal Council, hereby certify that the following are the names offices and true specimen signatures of the persons each of whom will and shall continue to be (until you receive authorized written notice from the Recipient that they, or any of them, no longer continue to be) authorized

- to sign on behalf of the Recipient the Requests for Contributions provided for in the Agreement;
- to sign the certificates provided for in the Agreement; and
- to take, do, sign or execute in the name of the Recipient, any other action required or permitted to be taken, done, signed or executed under the Agreement and under any other agreement to which you and the Recipient are parties:

<u>No.</u> 1.	<u>Name</u>	Specimen Signature	<u>Office</u>
2.		Yours truly,	file Town of Months are
		i ne Corporation o per:	f the Town of Markham
		XXX	X
		I have authority to herein	bind the Recipient

Schedule C

Form of Request for Contribution

(see Section 2.03 and subsections 3.01(d) and 3.02(d))

[LETTERHEAD OF THE RECIPIENT]

[Address] [Date]

Federation of Canadian Municipalities 24 Clarence Street Ottawa, Ontario K1N 5P3 Attention: Ms. Barb Gray Project Officer

Ladies and Gentlemen:

Re: Green Municipal Fund – Study no. 7268
Agreement dated 3, 2003 ("Agreement") between the Federation of Canadian Municipalities (as Trustee/Donor) and the Corporation of the Town of Markham ("Recipient")

Request for Contribution no:

- 1. All terms defined in the Agreement shall have the same meanings herein and all references herein to Articles. Sections and subsections of the Agreement.
- 2. The Recipient hereby requests a Contribution, on or before ______, 20X of the following amount, in accordance with the provisions of Section 2.03 and subsection 3.01(d) OR 3.02(d);

\$_____

The Recipient requests that such amount be paid to:

Name of Bank: Address of Bank: Telephone no. of Bank:

Bank no.: Transit no.:

to the credit of Recipient's Account no.:

Provided that if this is not the first Contribution, the Recipient hereby acknowledges having received from you the following prior Contribution(s):

	Con Con	tribution no. 1 on, 200 X of \$ tribution no. 2 (<i>if applicable</i>) on, 200 X of \$
3.		Recipient hereby certifies as follows:
	(a)	the Recipient has obtained and maintained in good standing, all appropriate authorizations, including any necessary by-law or resolution passed by the Recipient's Council and any necessary authorization from the Government of the Province of Ontario for undertaking the Study and receiving the Grant;
	(b)	each of the Sources of Funding as described in Part 2 of Schedule A has contractually agreed on the nature and the amount of its funding and all such funding that is due at the date of this Request has been received by the Recipient;
	(c)	the representations and warranties confirmed or made in Article IV shall be true on and as of the date of the requested Contribution with the same effect as though such representations and warranties have been made on and as of the date of such Contribution
	(d)	the Recipient is in compliance with the covenants contained in Article the proceeds of the Contribution hereby requested will be applied exclusively for Eligible Costs in accordance with the Grant purpose specified in Section 2.01; and
	(1)	provided that this is not the first Contribution, the prior Contribution(s) has/have been entirely used by the Recipient for Eligible Costs in accordance with the Grant Purpose specified in Section 2.01 within six (6) months following the date of (each) such prior Contribution.
4.	this F Contr the d	certifications in paragraph three (3) above are effective as of the date of Request for Contribution and will continue to be effective as of the date of ribution. If any of these certifications is no longer valid as of or prior to ate of the Contribution hereby requested, the Recipient will immediately FCM.
		Yours truly, The Corporation of the Town of Markham
As ı	named ii	by Authorized Representative* n the Recipient's last Certificate of Incumbency and Authority

Schedule D

GMF Final Report Submission Requirements (see subsection 3.03(c))

Green Municipal Fund (GMF) Detailed Feasibility Study Report Requirements

Purpose of Report Requirements

The goal of the Green Municipal Fund ("GMF") is to support studies to assess the technical, environmental and/or economic feasibility of innovative environmental infrastructure projects. It is hoped that by providing such support a greater number of innovative environmental infrastructure projects will be undertaken by municipal governments and their partners.

Recipients of GMF grants are required to submit a final Detailed Study report to the GMF as a condition of their final disbursement request. These reports must correspond to the reporting requirements aid out in his document.

The GMF reporting requirements are designed to facilitate the development of innovative environmental infrastructure projects based on the results of GMF studies by asking grant recipients to provide specific information in their detailed feasibility study reports that demonstrates exactly how the option deemed feasible by the study (or the preferred option in the case of multi-option studies) can be implemented

This document describes the GMF reporting requirements for GMF funded detailed feasibility studies. It presents instructions and an outline for completing the two sections of the detailed feasibility study report that are required by the GMF Grant Agreement.

Submission of Reports

GMF grant recipients must enclose *final* copies of the Detailed Study reports in both hard (paper) and soft (electronic) formats with their final request for disbursement. Reports that are not clearly identifiable as final reports, such as those displaying headers, footers, titles or watermarks containing terms such as "draft" or "for internal use only", will not be accepted by GMF.

Recipients must enclose at least one hard copy of the final report, including all attachments and appendices, appropriately bound with protective cover and backing. Additionally, an electronic copy of the report, including all attachments and appendices, must be submitted in Portable Document Format (PDF) with searchable text functionality. If a recipient does not have the capacity to create PDF documents in-house (typically using Adobe Acrobat software), there are

numerous firms that can provide a commercial service at reasonable costs to meet this requirement.

Required Information

Because of the wide range of study types funded by the GMF, the GMF does not stipulate a required overall document structure for final reports. Instead, the GMF requires that certain specific information demonstrating exactly how the preferred option(s) can be implemented be included in the report. This information must be presented in sections with clearly marked titles. The sections that must be included are:

- 1. Financing and Implementation Plan for the Preferred Option(s), and
- 2. Expected Environmental Benefits of the Preferred Option(s)

The intention is that these sections should present muricipal council members, potential project financing organizations (such as banks, and provincial and federal government programs like the GMF) and other stakeholders with a solid foundation of information that will aid them in tuture decisions regarding the implementation of the preferred study option as an actual physical project.

Instructions for Completing Required Sections

1. Financing and Implementation Plan for the Preferred Option

In this section, the recipient must determine and propose a Financing and Implementation Plan that describes now the municipality could implement the preferred study option. This plan should be complete enough to form the basis of a future formal council recommendation to implement the option.

In completing this section, recipients are asked to contact a GMF Project Development Manager. GMF Project Development Managers are expert financial planners who specialize in the development of financing and implementation plans for innovative municipal environmental infrastructure projects. Involving a GMF Project Development Manager in the completion of this section, as early as possible in the report writing process, will ensure the quality and scope of this section of the report.

In this section, recipients are required to:

- A. Describe how the project will be financed, and
- B. Describe the political framework in which the project will take place.

Guidelines for completing these required subsections are presented below. More specific information and guidance should be obtained from a GMF Project Development Manager.

A. Description of how the project will be financed

The following are a few of the important issues that need be addressed in a project financing plan:

Who is expected to be financing the project?

- Municipality
- Private Sector
- Partnership
- Other provincial or federal government programs (such as the GMF)
- Other (describe)

If municipal or partnership funding, how are the costs being covered?

- Operations Budget (lease, operational savings, etcal)
- Capital Reserve
- Debt
- Other (describe)

If debt, what are the details of:

- Repayment (property tax, user fees, etc.)
- Debt Structure (term, rate (lending institution, etc.)

If private sector financing:

- What is the partnership structure?
- What connection(s) exist between the municipality and the private sector partner

Potential Economic Benefits of the Project

- Polential ppelating cost savings (labour, utilities, etc.)
- Potential capital cost savings (i.e. how this project saves money by differing or avoiding other projects)
- Potential economic spin-offs (such as jobs created, multiplier effects, upstream or downstream effects, etc.)
- Others (describe)

B. Description of the political framework for the project

This subsection should contain descriptions of the presence or absence of targets, action plans, by-laws or any other formal or informal programs or initiatives at the municipality that may affect the project. These may include:

Municipal environmental performance

- Past performance
- Existing innovative environmental infrastructure
- · Legislated or non-legislated goals or targets
- Other indicators (describe)

Potential political barriers/bottlenecks to the project **and** how the barriers/bottlenecks could be overcome

- Demonstrated council or public resistance to innovation
- Upcoming elections
- Issues specific to the project (land availability, zoning, etc.)
- Timing of the council recommendation
- Other barriers (describe)

How the project fits into existing municipal plans and objectives

- · Long term infrastructure requirements/plans of municipality
- Development plans
- Sustainability commitments/plans
- Others (describe)

Based on the information in the financing plan and the political framework subsections, some proponents may wish to submit a recommendation to their councils. GMF Project Development Managers can also assist in the preparation of such a recommendation. The recommendation may be of the form

It is recommended that:

- 1. The report [title] be received
- 2. That the project be financed as indicated in section XX.X.X of the report.
- 3 (Any other recommendations regarding the project that are included in other areas of the report)
- 4. etc.

2. Expected Environmental Benefits of the Preferred Option

In the section, the recipient must describe the net environmental benefits of the project To do this, it must be demonstrated that the environmental effects (both positive and negative) of both the project and the baseline systems have been considered using a Life Cycle Approach as described below. Recipients are encouraged to contact their GMF Project Officer should they have any questions about completing this section of the report.

In this section, recipients are required to:

- A. Summarize the study goal(s) and compare the options being studied in a summary table,
- B. Provide more detailed information on the project system of the preferred study option,
- C. Provide more detailed information on the baseline system of the preferred study option, and

D. Calculate the projected net environmental benefits of the preferred study option.

Descriptions of these requirements are provided below.

A. Summary of the study goal(s) and comparison of the study options
This subsection must contain a brief narrative description of the study and
project goals including:

Study goal

- Describe the overall study goal.
- This may be to assess the technical, environmental and/or economic feasibility of an innovative environmental infrastructure project (e.g. to determine if producing green power for sale to the provincial power authority is economically feasible).
- Note: the study goal may not necessarily be an environmental goal (it may be technical or economic, as in the above example).

Primary environmental benefit of the preferred option

- Describe the environmental goal of the preferred option if the physical project is implemented.
- This may be along the lines of lower GHG emissions from capturing and destroying landfill gas" and is potentially different from the study goal, above

Secondary er vironmental benefits of the preferred option

- Describe any expected secondary environmental benefits of the preferred option if implemented.
- These are other positive effects the project may have on water, soil, the atmosphere or climate.
- or example, a recycling program may have the primary benefit of reducing the amount of municipal solid waste landfilled, but its secondary benefits could be improved groundwater quality through reduced leachate from the landfill, reduced Greenhouse Gas emissions from the landfill, reduced societal reliance on primary resources, increased community awareness of environmental issues, etc.

B. Description of Project System

This subsection must describe the environmental impacts (both positive and negative) of the preferred study option. This includes the following:

Identify main project elements

Describe the project systems, including the main project elements.

- What are the production levels of the system (e.g. sq. feet of building space heated, m3 of water processed, total vehicle kilometres traveled, etc.)
- Be sure to include any elements that contribute to the environmental benefits defined above.

Identify mass & energy inputs/outputs for each element (including units)

- For example, a landfill gas flare would have a certain mass of methane as input and a certain mass of carbon dioxide as output, both measured in kg.
- Note: expected results should be calculated in units of measure (such as litres, kilograms, meters, etc.), rather than in intensities (such as kg of CO2e per year).

C. Description of Baseline System

This subsection must describe the system to which the project is being compared (the baseline):

Define the baseline systems

 For the purposes of the GMF, there are 2 types of baselines: alternative and generational.

An alternative baseline is:

The technology, process or system that is to be displaced, through retroit or avoidance

This may be the existing infrastructure that would be replaced by the project, or if nothing currently exists it would be the industry standard technology, process or system.

generational baseline is:

- The previous version of the technology, process or system that is being introduced by the project.
- In other words, an earlier (possibly out-dated or less efficient) version of the technology, process or system.

Identify main baseline elements

- Describe the baseline systems, including the main baseline elements.
- What are the production levels of the baseline (e.g. sq. feet of building space heated, m3 of water processed, total vehicle kilometres traveled, etc.).

Identify mass & energy inputs/outputs for each element (including units)

As above.

D. Net Environmental Benefits of the Preferred Option

This subsection must describe the anticipated environmental results of the preferred option if implemented.

Describe the expected energy and mass flow changes from baseline to project

- Subtract the project emissions and energy use from the baseline emissions and energy use to obtain the difference
- The environmental benefit of the project is simply the amount of pollutant emitted by the baseline (usually, the amount of pollutant currently being emitted) minus amount that will be emitted by the project
- Be sure to account for all impacts and benefits in this description.

Describe potential environmental benefits outside project boundaries

- Some projects may change the amount of pollutants emitted or resources used by some third party, and this should be described and estimated here.
- For example, an alternative energy project would need to use appropriate emissions factors to calculate the amount of GHG reduced by displacing power from coal-fired generating stations. Many other industries have similar published emissions factors or other rule of humb" type guidelines for calculating emissions due to their products or services.

Present a Study Options Summary table

- Present a summary table containing expected environmental data for the preferred study option.
- option out of a range of possibilities, the expected environmental benefits of all the options studied should be summarized in this table.

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Canadian Energy Partnership for Environmental Innovation

A Strategic Innovation Collaboration

February 8, 2006

Federation of Canadian Municipalities Green Municipal Fund 24 Clarence Street Ottawa, Ontario K1N 5P3

Fax: (613) 244-1515

To:

Mr. Sandor Derrick

Subject:

GMF Application Number 7268 - Participation of Canadian Energy Partnership for

Environmental Innovation as a contributing partner

Dear Mr. Derrick:

I am writing to confirm that Canadian Energy Partnership for Environmental Innovation will participate financially in the integrated solar thermal energy system feasibility study, currently under review by the Green Municipal Fund, Application number 7268. The Partnership funds research to support the Canadian natural gas industry, including studies that identify and capitalize on opportunities for growth and which support initiatives of industry members such as those in the area of renewables and energy efficiency.

Our interests in this project will be to provide an additional element to the study by involving the integration of natural gas-fired co-generation technology to those currently being evaluated.

I am pleased to confirm our funding contribution of \$31,250.00 subject to the successful execution of an agreement between the Canadian Energy Partnership for Environmental Innovation, the Town of Markham (the Lead Applicant), and other partners.

I understand, should the application be approved, that a contractual relationship with the Lead Applicant (such as a Contribution Agreement) must be evidenced to FCM prior to any disbursements from the Funds being made to the Lead Applicant.

I would be pleased to answer any questions you may have and look forward to participating in this exciting project.

Sincerely,

Jasmine Urisk Program Director (519) 836-3739

jtu@sentex.net

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