

Development of Low-Carbon Thermal Energy Networks (LCTEN)

Date: November 15, 2017

To: Executive Committee

From: Deputy City Manager, Internal Corporate Services

Wards: All

SUMMARY

In June 2017, the Executive Committee directed the Deputy City Manager, Internal Corporate Services (then Chief Corporate Officer) to lead the negotiation of the necessary agreements for a business arrangement with Enwave Energy Corporation ("Enwave") for the development of Low-Carbon Thermal Energy Networks ("LCTEN").

The key objectives that have been identified include:

- Reduce greenhouse gas emissions, and improve energy resilience;
- Achieve speed to market, scalability, and ability to fund projects identified for development; including attracting grants from external parties;
- Foster economic development, City building, and new revenue opportunities;
- Mitigate risks associated with project development and operation; and
- Create balance between long term project development and the capability to initiate projects that are ready for development now.

The City is considering several potential organizational and governance models. The initial step is to enter into a Joint Develop Agreement with Enwave that will lead to the definition of the preferred governance and operational framework to be implemented. Negotiations with Enwave are ongoing and we will report back to Council in Q1 of 2018.

The next steps are:

- The City and Enwave negotiate the terms a joint-development agreement (non-binding until approved by Council), consistent with the principles outlined in Attachment 1 for consideration and approval by Council in Q1 of 2018.
- The City prepare a business case study to determine an appropriate governance and operational framework for a partnership with Enwave and to report back to Council in Q1 of 2018.
- The City and Enwave continue due-diligence on near-term LCTEN development opportunities in specific geographic nodes.

RECOMMENDATIONS

The Deputy City Manager, Internal Corporate Services recommends that:

1. City Council direct the Deputy City Manager, Internal Corporate Services to negotiate with Enwave Energy Corporation, based on the principles in Attachment 1, the terms for a Joint-Development Agreement for the purpose of developing Low-Carbon Thermal Energy Networks, and report back to Council in Q1 of 2018
2. City Council direct the Deputy City Manager, Internal Corporate Services to undertake a business case study in consultation with the City Manager, to determine an appropriate governance and operational framework for a partnership with Enwave and to report back to Council in Q1 of 2018.
3. City Council direct the Deputy City Manager, Internal Corporate Services to work with Enwave and key City divisions, agencies and corporations on the development of a portfolio of near-term opportunities, including applying for grants, entering into contribution agreements for grants if successful, and other due-diligence related activities.

FINANCIAL IMPACT

Implementing the recommendations in this report will result in costs to the City of \$0.300 million, which will be used to increase the value of existing contracts for outside counsel and third-party business advisory services. The funding for this is included in the 2017-2026 Council Approved Capital Budget and Plan for Facilities, Real Estate, Environment & Energy (FREEE) under the Community Energy Planning capital project (CCA705-01).

Future business cases will be prepared for each development opportunity as part of the due-diligence activities. Enwave's contribution is expected to be primarily capital, while the City's financial contribution to individual projects may include the provision in-kind contributions, capital in the form of grants from other levels of government, leases/access to City assets, and other arrangements.

Decisions to connect City buildings to low-carbon thermal energy networks will be made independently on business terms.

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

DECISION HISTORY

On June 27, 2017, the Executive Committee directed the Deputy City Manager Internal Services (then Chief Corporate Officer) or designate to negotiate with Enwave the necessary agreements, in a form satisfactory to the City Solicitor and report back to Council for approval of the proposed agreement and terms in the fourth quarter of 2017.

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2017.EX26.22>

On October 26, 2016 the Executive Committee adopted the staff report entitled 'Development of Low-carbon Thermal Energy Networks (District Energy)' which set out the rationale, value proposition, and three stage process to choose a partner(s) with whom to evaluate the opportunity and create a path to move forward.

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2016.EX18.15>

On December 13, 2016 City Council adopted TransformTO: Climate Action for a Healthy Equitable, and Prosperous Toronto - Report 1 - Low Carbon Short Strategies to the year 2020. Development of low-carbon thermal energy networks is a fundamental component towards achieving City Council adopted 2020 GHG reduction target.

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2016.PE15.1>

At its meeting on May 24, 25, 26 City Council adopted TransformTO: Climate Action for a Healthy, Equitable and Prosperous Toronto - Report 2 - The Pathway to a Low Carbon Future to the year 2050. Development of low-carbon thermal energy networks is a fundamental component for the City to meet its 2050 GHG reduction target.

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2017.PE19.4>

COMMENTS

Background

Development of low-carbon thermal energy networks are a fundamental strategy, outlined in TransformTO, to meet climate change targets adopted by City Council, while attracting significant investments to the benefit of the local economy, generating revenue, ensuring energy does not become a limiting factor for growth, and improving energy resilience.

- The City cannot achieve TransformTO goals acting alone. A partnership to develop low-carbon thermal energy networks would provide the necessary scale and long-range planning and the potential to attract investment. The benefits to the City include potential investment returns for the City from successful projects.
- The City will work with Toronto Hydro to see where electrical opportunities arise as part of the development of LCTENs.

- There are revenue generation opportunities for the City from co-locating renewable/low-carbon energy sources with municipal infrastructure/assets for thermal energy networks.
- There may be provincial and federal grants available for projects that reduce greenhouse gas emissions. Low-carbon thermal energy networks are consistent with Ontario's Climate Action Plan, the Federal Infrastructure Bank, and Natural Resources Canada's clean energy grants.

Technologies for local low-carbon/renewable energy supply for thermal energy networks may include:

- sewer heat recovery,
- ground-source heat pumps,
- solar thermal collectors,
- waste heat recovery,
- urban biogas utilization, and
- urban biomass utilization.

Enwave selected to negotiate a business arrangement

Enwave was selected to negotiate with the City, as the result of an open and competitive 3-stage process, consisting of a (1) Request for pre-Qualification; (2) Request for Proposal issued by the City of Toronto on the MERX bid system; and (3) Direct negotiation with the City for the creation of the development framework. The open competitive process was carried out as directed by the Executive Committee on October 26, 2016.

Enwave demonstrated customer relationships and the capability to develop, design, and construct new LCTEN, as well as proven capacity to make the necessary financial investments.

Status of negotiations with Enwave

The City and Enwave have been discussing appropriate governance and operational frameworks. The initial step has been the preparation of a principles list to guide the negotiation of a Joint Development Agreement (non-binding until approved by Council). Among other things, that agreement will define the governance and operational structure to be implemented. Negotiations with Enwave are ongoing and we will report back to Council in Q1 of 2018.

The City and Enwave have also conducted due-diligence activities on near-term LCTEN development opportunities in specific geographic nodes.

The key objectives for the creation of a partnership in the development of LCTEN include:

- Reduce greenhouse gas emissions, and improve energy resilience;
- Achieve speed to market, scalability, and ability to fund projects identified for development; including attracting grants from external parties;
- Foster economic development, City building, and new revenue opportunities;
- Mitigate risks associated with project development and operation; and
- Create balance between long term project development and the capability to initiate projects that are ready for development now.

The City and Enwave must also develop a process to evaluate investment in the various projects to be undertaken. City financial contributions to individual projects may include in-kind contributions allowing access to certain City assets, capital from grants from other levels of government, and other arrangements. Enwave's funding participation is expected to be primarily capital.

The City will be seeking to share in the benefits derived from each project, which may include the receipt of royalties, lease payments, or other revenues, along with reductions in greenhouse gas emissions, retaining carbon credits, and the acknowledgement of the City's leadership in this area.

Included in the principles list is a consideration to provide preferential development rights to both parties for a period of up to twenty years, with periodic review against pre-established milestones and off-ramps that could be exercised by either party with appropriate supporting rationale.

Preferential development rights may include access to City assets, such as:

- Sewers - for heat recovery, and other low-carbon energy sources;
- Access to subsurface energy on city property;
- Access to City property and/or buildings.

Private LCTEN projects on private land, where no City assets are required, fall outside of this arrangement. However, the City will continue to encourage and work closely with property owners, energy developers, and other stakeholders on LCTEN projects on private property.

Next steps

- The City and Enwave negotiate the terms a joint-development agreement (non-binding until approved by Council), consistent with the principles outlined in Attachment 1 for consideration and approval by Council in Q1 of 2018.
- The City prepare a business case study to determine an appropriate governance and operational framework for a partnership with Enwave and to report back to Council in Q1 of 2018.
- The City and Enwave continue due-diligence on near-term LCTEN development opportunities in specific geographic nodes.

CONCLUSIONS

The development of low-carbon thermal energy networks is a TransformTO strategy approved by Council in 2017. The development of these opportunities with a private-sector partner is an innovative approach to achieving scale and momentum. The combination of significant new developments/redevelopments, the potential availability of grant monies from other levels of government and Council's direction to create low carbon neighbourhoods makes this an appropriate time for the City to move forward with this approach.

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SIGNATURE

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ATTACHMENTS

Attachment 1 Joint Development Agreement – KEY PRINCIPLES

ATTACHMENT 1

Joint Development Agreement – KEY PRINCIPLES

The City and Enwave will negotiate a joint development agreement (the “Development Agreement”) which would include the following key principles:

- **Parties: “Enwave” and the “City”:** Development Team: The Development Agreement would establish a development team (“Development Team”) who would govern the implementation of the terms and conditions of the Development Agreement. The Parties should consider the following key issues associated with the Development Team:
 - Who would represent each Party on the Development Team and how many representatives each Party would have on the Development Team;
 - The issues that the Development Team would be entrusted to consider;
 - The issues that the Development Team would defer to the City and Enwave; and
 - The Development Team decision-making process and a process for resolving deadlocks.
- **The Development Agreement:** The Development Agreement will:
 - set out the Parties’ Preferred Rights (as defined below);
 - establish the process to be followed by the Parties’ for bringing opportunities to each other and for determining whether to jointly pursue such opportunities;
 - require the Parties to use commercially reasonable efforts to achieve certain milestones to be set forth in the Development Agreement (e.g. the reduction of greenhouse gases);
 - set out the Parties’ confidentiality obligations;
 - commit to negotiate a mutually beneficial management and governance structure;
 - have a term of twenty (20) years (the “Term”) in keeping with the development and full build-out of LCTENs, subject to earlier termination as contemplated in the Development Agreement;
 - require that the Parties conduct a strategic review of this arrangement every five (5) years or such other period as the Parties agree;
 - contain termination and default provisions as agreed to by the Parties. Termination of the Development Agreement will not affect Project agreements that have been executed by the Parties; and
 - set out reasonable gaming provisions such that a Party may be precluded from developing a particular Project for a specified period of time if the Development Team decides not to develop the Project.
- **Preferential Development Rights:**
 - Both Parties would be granted certain preferential development rights which will require each Party to offer the other Party the right to participate in any Project occurring within any Node (as defined below) and shall not permit the undertaking of that Project independently until that right has been waived or terminated (“Preferred Rights”).

- Preferred Rights will be dependent on and subject to a Party meeting certain Project development stages.
 - Preferred Rights will be limited to “Nodes” which will be defined by specific geographic locations within the City of Toronto which would be developed under this Development Agreement. Each Node will contain one or more Projects.
 - Each Party will have the ability to add or subtract Nodes and Projects within Nodes upon mutual agreement.
- **Performance Deliverables:**
 - The Parties expect the Projects to be developed in an efficient, cost-effective and expeditious manner.
 - During the Term, the Parties will be expected to adhere to specific development timelines and meet certain development stages for each Project (“Stages”). Stages will be defined for each Project and will reflect typical Project development milestones commonly found in the development of Low-Carbon Thermal Energy Networks, and will include but not be limited to:
 - initiating and conducting due diligence;
 - negotiating and finalizing definitive agreements relating to the Projects including energy supply agreements, leases, O&M agreements etc.;
 - commencing construction and reaching substantial completion; and
 - achieving commercial operation.
 - If a Party fails to meet a Stage for a particular Project, extensions or cure periods may be available at the outset under certain circumstances.
 - Thereafter, if a Party continues to fail to meet a Stage for a Project and there are no further extensions or cure periods available to correct such failure, then such Party will lose its Preferred Rights for the applicable Project.
 - If a Party consistently fails to meet Stages, without cure or waiver by the non-defaulting Party, this will result in the Party losing its Preferred Rights for that particular Node.
- **Events of Default/Termination:** Termination of the Development Agreement will be triggered by events of default as described in the Development Agreement. Termination of a Party’s Preferred Rights to develop a Project can occur due to a failure to meet Stages, as described above. Project agreements will contain termination rights for an event of default. Termination of the Project agreements for a particular Project would not be considered an event of default (cross-default) under any of the executed Project agreements relating to other Projects (unless both Parties mutually agree). However, if a Party loses its Preferred Rights for multiple Projects due to multiple events of default then the Development Agreement may be terminated by the non-defaulting Party. Termination of the Development Agreement will not affect Project agreements that have been executed by the Parties.

- **Capital Structure:** Parties shall agree on the capital structure and financing structure on a Project by Project basis, to be reflected in each Project’s business case.
- **Government and Other Third Party Funding:** The Parties shall undertake Projects in a manner intended to ensure eligibility for government and other third party funding where available.
- **Process for Identifying Projects:** In addition to the initial list of Nodes and Projects specified in the Development Agreement:
 - each Party may propose additional Projects to be considered under the Development Agreement (while it is expected that the Parties will submit shovel-ready Projects initially, each Party will be free to determine which Projects will be specified and in which order);
 - the type and scope of specified Projects (district energy with heat recovery and low-carbon thermal energy and electricity projects, micro-grids) to which Preferred Rights apply shall be specified in the Development Agreement. Alternatively, Parties may wish to provide a general description and allow each Party to decide on type and scope through the specification process. Some Projects may be limited to design only, others to design and build only, and still others to design, build, operate and maintain;
 - the Development Agreement will specify the process for proposing additional Projects including the level of information to be provided, the type of Project, the timeline for due diligence and the decision-making process; and
 - the ability of the proposing Party to pursue, independently, if the Development Team decides not to develop the Project.
- **Project Agreements:**
 - The Parties will agree to negotiate the Project agreements in good faith.
 - If Project agreements are not finalized within a well-defined period, there will be no further consideration of the specific Project and the Party’s Preferred Rights for that Project will terminate.
- **Liability:** There will be no liability under the Development Agreement. However, there could be liability under Project agreements arising out of the Development Agreement.
- **Binding vs. Non-Binding Terms:** Various aspects of the Development Agreement would be expected to be non-binding (except for Preferred Rights, confidentiality/public announcements).
- **Right of First Refusal:** Both Parties will have a right of first refusal (“ROFR”) to acquire the other Party’s interest in a Project in the event that a Party is seeking to divest its equity interest in the Project.

- **Environmental Attributes:** One of the drivers for the City to enter into the Development Agreement is the need to reduce its greenhouse gas emissions. The City will retain ownership of any greenhouse gas emission reductions or other reductions necessary to establish environmental attributes, unless otherwise agreed to.
- **Affiliates:** Enwave will agree to work with any and all City affiliates upon request by the City.

Issues which are expected to be addressed by the Parties in the context of a specified Project may without limitation, include:

- Joint-Ownership: Units to be held by each Party – Each Party’s ownership may vary depending upon the specific Project.
- Type of Project.
- Specific Project issues including demand, customer commitments, plant sizing.
- Right of First Refusal.
- Financing of Projects: based on the specific attributes of a particular Project.
- Valuation of each Party’s contributions in kind if any (e.g. access to property/infrastructure, entering into an energy supply contract as a customer, government grants/funding).
- Development Funding: budget and recognition of previous funding towards a specified Project.
- Forms of revenue/income for the Parties (e.g. lease payments, royalties, O&M payments).
- Project level agreements, including energy supply agreements, leases, operating and management agreements.
- Management of the development process: e.g. a committee of City staff and Enwave staff who have oversight of specified Projects.
- Governance aspects (e.g. Board of Directors/Management Committees) when Project entities are created.
- Off-ramps/Termination for non-performance.

An Initial list of Nodes to be proposed/specified under the Development Agreement, may include:

- Westwood/Six Points Interchange
- East Bay Front/Lower Yonge
- Canada Square/Yonge and Eglinton
- Port Lands
- Scarborough Centre
- Don Mills Crossing: Celestica/Wynford Green + Build Toronto site
- Liberty Village
- Other Build Toronto sites, including Markham & Dunelm.