

### **Update: Development of Low-Carbon Thermal Energy Networks (District Energy)**

**Date:** June 1, 2017

**To:** Executive Committee

**From:** Chief Corporate Officer

**Wards:** All

#### **SUMMARY**

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On October 26, 2016 Executive Committee directed the Chief Corporate Officer to identify the appropriate market partner using a three-stage approach and report on the outcome and next step for the development of low-carbon thermal energy networks.

The outcome of the three-stage market sounding exercise resulted in the selection of Enwave Energy Corporation (Enwave) as the strategically aligned entity for the City of Toronto to engage with on a joint initiative to develop low-carbon thermal energy networks in Toronto.

Enwave has shown to have:

- Demonstrated customer relationships
- Capability to develop, design, and construct new low-carbon thermal energy networks.
- Proven ability to make the necessary financial investments

The next step will be for the City and Enwave to negotiate a term sheet to define the arrangement and associated value proposition and seek approval from City Council, as well as, the Enwave board.

#### **RECOMMENDATIONS**

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**The Chief Corporate Officer recommends that:**

1. The Executive Committee direct the Chief Corporate Officer or designate to negotiate with Enwave the necessary agreements, together with any applicable conditions indicated in the Request for pre-Qualification and Request for Proposal, in a form satisfactory to the City Solicitor and report back to Council for approval of the proposed agreement and terms in Q4 2017.

## FINANCIAL IMPACT

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There is no financial impact resulting from the approval of this report.

The funding envelope provided by Enwave for development of low-carbon thermal energy networks, the potential sources of revenue for the City and associated value proposition will form part of the subsequent report to Council in Q4 2017 outlining the appropriate supporting analyses and recommendations before any commitments are made.

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

## DECISION HISTORY

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At its meeting on October 26, 2016 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>

At its meeting 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

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Large-scale development of low-carbon thermal energy networks are a fundamental strategy to meet climate change targets adopted by City Council, 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 do it alone. A partnership to develop low-carbon thermal energy networks provide the necessary scale and long-range planning with the potential to attract billions of dollars in capital investments from pension and infrastructure investment funds. There are potential sources of revenue for the City.

There are revenue generation opportunities for the City from co-locating renewable/low-carbon energy sources with municipal infrastructure/assets for thermal energy networks (i.e. sewer heat recovery, ground-source heat pumps, solar thermal collectors, biogas/heat recovery from solid waste and wastewater treatment operations, wood-chips utilization from urban forestry operations).

- In 2000, Enwave was created as a partnership between the City of Toronto and OMERS to develop the world renowned Deep Lake Water Cooling system. The system extracts renewable energy from cold drinking water at Toronto Water's John Street pumping station. A thermal energy network of underground pipes supplies cooling to sixty of the most iconic buildings in Toronto, including City Hall, Police Headquarters, Provincial Legislature, Toronto Dominion Centre, and the Air Canada Centre.
- In 2012, the City of Toronto and OMERS sold Enwave to Brookfield Asset Management (Brookfield) for \$488 Million. The City realized \$100 Million dollars in profit.

### **Federal and Provincial Funding**

As emission reduction projects, low-carbon thermal energy networks are consistent with both Ontario's Climate Action Plan, and the Federal Infrastructure bank, there may be eligible for provincial and federal funding.

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.

Transformational large-scale development of low-carbon thermal energy networks are a fundamental strategy to meet climate change targets adopted by City Council, 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.

### **Market sounding competitive process to identify partner(s)**

On October 26, 2016 Executive committee directed the CCO to identify appropriate market partner(s) using a three stage approach (RFpQ, RFP, and Negotiation) and report on the outcome and net steps for the development of low-carbon thermal energy networks.

The outcomes of the three three-stage market sounding process is:

- Stage 1 - (RFpQ) Request For pre-Qualification call document was purchased by 83 organizations from across North America and from Europe. 12 proposals were received. 5 organizations were short-listed

- Stage 2 - (RFP) Request for Proposal from the 5 short listed organizations. 3 proposals were received. Enwave Energy Corporation (Enwave) was selected to move the next stage
- Stage 3 - Negotiation - the City invited Enwave to commence negotiations on a term sheet

See Attachments for RFpQ and RFP evaluation criteria.

## CONCLUSIONS

- The next step will be for the City and Enwave to negotiate a term sheet to define the arrangement and associated value proposition and seek approval from City Council, as well as, the Enwave board.
- The outcome of the three-step market sounding exercise resulted in the selection of Enwave Energy Corporation (Enwave) as strategically aligned entity for the City to engage with on a joint initiative to develop low-carbon thermal energy networks in Toronto.
  - Enwave has demonstrated customer relationships, the capability to develop, design, construct, as well as, fund new low-carbon thermal energy networks.
  - Transformational, large-scale, low-carbon thermal energy networks will be fundamental to enabling the City to achieve its Council-approved, long-term energy and climate goals.
  - This initiative benefits the local economy, generating revenue, ensuring energy does not become a limiting factor for growth, and improving energy resilience.

## CONTACT

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## SIGNATURE

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Josie Scioli  
Chief Corporate Officer

Attachment 1 - Evaluation Criteria: Request for pre-Qualification (RFpQ)  
Attachment 2 - Evaluation Criteria: Request for Proposal (RFP)