

# **Geothermal-Based Community Energy System Pilot Project (Wards 2 and 6) Development Services Committee**

**June 11, 2018**

**Presented by:**

**Graham Seaman, Director, Sustainability & Asset Management**

**Brian Lee, Director, Engineering**

**Catherine Jay, Development Manager, North District**

# Agenda

- Background
- Benefits to Markham
- The Atmospheric Fund
- Issues Identified by City Departments
- Financial Considerations
- Recommendations

## Background

- Mattamy and Enwave are proposing a networked ground source ('geothermal') community heating and cooling energy system for Mattamy's first phase in Berzcy Glen, approximately 400 homes
  - This concept would be a first in Canada and possibly North America
- Sustainability and Asset Management convened a series of workshops to introduce and review the concept with City staff, TRCA, Markham District Energy, Alectra and relevant staff from the Ministry of Environment and Climate Change
- All stakeholders are supportive of this innovative concept, however there are many issues to address before allowing access to our Right of Way and moving to implementation

## Benefits to Markham

- Supports the Municipal Energy Plan goal of Net Zero Emissions by 2050
- Supports the Greenprint, Markham's Community Sustainability Plan
- Sets the bar for new development – with the proposed low carbon ground source heat pump based community energy system for residential homes
- Community (home owner) benefits include – low carbon and low up front costs, simplified experience, improved home layout and comfort, improved reliability, energy empowerment (smart home energy management apps)

## The Atmospheric Fund (TAF)

- Formerly called the Toronto Atmospheric Fund which now has a GTHA wide regional mandate as supported by the Province
- In May the City's application for \$225,100 was awarded in support of Mattamy-Enwave-Markham's pilot project for Front End Engineering, Design and Learning
- Grant agreement for funding is with City and TAF
- City will need to enter into additional agreement(s) with Mattamy and Enwave to set pilot project expectations, flow TAF grant funds and to implement future stages of the project

## Issues Identified by City Departments

Included but not limited to the following to be addressed:

- Use of Municipal Right-of-Way (“ROW”) and impact to City’s infrastructure
- Environmental Impact of proposed Open Loop concept
- Operations and maintenance
  - Design life of system, redundancy or factor of safety of system for the City of Markham and its residents.
- How is Enwave regulated and how will future home owners be protected and informed?

## Financial Considerations

There are no current financial impacts in receiving the information in this report. Future impacts if and when this Pilot Project is executed might be for:

- Operations and maintenance of the ROW (both above ground and underground assets)
- Capital replacement of those same City assets in the ROW (listed above)
- Lease or other revenue from hosting private infrastructure in the ROW

## Recommendations

1. That the report entitled “Geothermal-Based Community Energy System Pilot Project (Wards 2 and 6)”, dated May 28, 2018, be received;
2. And That Staff be directed to continue to negotiate with Mattamy and Enwave to address outstanding issues;
3. And That Staff report back on the result of the negotiation, resolution of issues identified by Staff, and provide comments on the implementation of community energy system pilot project at a future Development Services Committee meeting;
4. And That the Mayor and Clerk be authorized to enter into agreements, as necessary, to the satisfaction of the Chief Administrative Office and the City Solicitor, to implement the Pilot Project;
5. And That Staff be authorized and directed to do all things necessary to give effect to this resolution.