

If this information is required in an accessible format, please contact 1-800-372-1102 ext. 3540.



The Regional Municipality of Durham Report

To: Committee of the Whole
From: Acting Commissioner of Works and Commissioner of Finance
Report: #2022-COW-15
Date: June 22, 2022

Subject:

Proposed Wastewater Energy Transfer Project - Dockside Development in the Town of Whitby

Recommendations:

That the Committee of the Whole recommends to Regional Council:

- A) That Regional Municipality of Durham staff be directed to work with Creative Energy and Brookfield Homes (Ontario) Whitby Limited to develop a Memorandum of Understanding and enter into a Waste Energy Transfer Agreement for the Dockside Development to the satisfaction of the Commissioner of Works, Commissioner of Finance, and the Regional Solicitor; and
 - B) That the Regional Chair and Clerk be authorized to execute any necessary documents or agreements relating to the Waste Energy Transfer project for the Dockside Development.
-

Report:

1. Purpose

- 1.1 This report provides an update on a proposal from Brookfield Homes (Ontario) Whitby Limited (Brookfield) to include a proposed district energy system within their Dockside Development. The Dockside Development is located on the east

and west sides of Brock Street South (Regional Road 12), immediately south of Pringle Creek in the Town of Whitby (Attachment #1). The proposed district energy system would exchange energy from the Regional Municipality of Durham's (Regional) sanitary sewer system to meet most of the space heating and cooling needs of the site.

- 1.2 The proposed energy exchange with a Regional trunk sanitary sewer would be the first of its kind in Durham Region. This is an innovative project for which the Region requires new policies, standard agreements and protocols. Therefore, staff propose to advance discussions on a Memorandum of Understanding (MOU) for advancing this initial project.
- 1.3 As outlined in [Report #2022-INFO-16](#), staff have engaged the services of ReShape Strategies to review the common approaches and best practices related to similar projects in North America.

2. Background

- 2.1 Through the Durham Community Energy Plan and Durham Region Corporate Climate Change Action Plan, the Region has committed to demonstrating leadership in responding to climate change – including striving towards achieving carbon neutrality as a corporation (by 2045) and Region-wide (by 2050). The Region can play a key enabling role in the path to carbon neutrality through collaboration with the building and development industry on policies, programs and infrastructure solutions that support greenhouse gas (GHG) emission reductions in the built environment.
- 2.2 The Region's wastewater assets have the potential to contribute to both corporate and Region-wide GHG reduction targets by transferring thermal energy (e.g., heating and cooling) between the trunk sanitary sewer collection system and adjacent buildings and facilities thereby displacing energy consumption (e.g., natural gas and/or electricity) that might otherwise come from fossil fuel energy sources. Such projects, referred to as wastewater energy transfer (WET) projects, can reduce GHGs from the building sector which is the second largest source of community-wide emissions in the Region. Enabling WET projects can play a key role in implementing the Region's climate change action plans and achieving community-wide net-zero GHG emissions.
- 2.3 This technological process of using energy from wastewater has been successfully applied in Europe for many years and has gained popularity in North

America in the last several decades. In Canada, the Resort Municipality of Whistler, the Metro Vancouver Regional District, and the City of Halifax have successfully provided access to municipal infrastructure for WET projects. The City of Toronto has approved a WET project at the Toronto Western Hospital which is in pre-construction design. Once operational, the Toronto Western Hospital WET project will be the largest in the world and reduce the hospital's natural gas consumption by 90 percent.

- 2.4 The Region is also undertaking a comprehensive water and wastewater GHG emissions management strategy where the study will include, among other items, an assessment of the overall heat recovery potential from the Region's wastewater system. This study will further inform on areas of the system which may yield the greatest degree of energy exchange potential, both for private sector participants wishing to utilize wastewater energy to displace traditional fossil fuel energy requirements for their respective developments, as well as for potential Regional opportunities. The Region has also recently conducted a feasibility study focused on waste energy transfer using similar technology at the Courtice WPCP.
- 2.5 Regional staff have had ongoing discussions with Brookfield to facilitate the first WET project in Durham Region. The project is expected to generate significant renewable heating and cooling energy for Brookfield's Dockside Development and by displacing fossil fuel use, the proposed sewer heat recovery project would realize material GHG emissions avoidance. The energy system is proposed to be owned and operated by Creative Energy which already owns and operates several district energy systems in Canada. The Region will retain ownership of the trunk sanitary sewer system and will remain responsible for its ongoing operations and maintenance.

3. Wastewater Energy Transfer Pilot Project – Next Steps

- 3.1 Key considerations for the advancement of this initial WET project will include:
 - a. Development of a MOU, including a term sheet, to include potential terms and conditions of a proposed agreement, drawing on the experience of other jurisdictions. The MOU would outline the developer's anticipated obligations as it relates to the design, construction, operation and maintenance of the facility and notes that all project risks are to be assumed by the developer;

- b. Consideration of financial impacts and fees, which could be flat rates for access to municipal infrastructure (e.g., road right-of-way, sewer connection), and/or indexed fees based on energy extracted from, and/or discharged to the Regional wastewater system;
- c. Recognition that this initiative will have long-term obligations/commitments by the Region, including the provision of access to wastewater flow over a multi-decade period that will need careful consideration to inform and guide similar future WET projects;
- d. Recognition of the thermal capacity of the trunk sanitary sewer collection system required to accommodate other potential development proposals 'upstream' or 'downstream' of the approved development site that may not be available once this commitment is made; and
- e. Given the community-wide GHG emission avoidance benefits, the Region may also wish to seek maximum retention of environmental benefits/attributes generated as a direct and/or indirect result of the WET project, where possible.

4. Financial Implications

- 4.1 WET Agreements are not expected to result in net costs to the Region. Potential financial benefits resulting from potential WET related fees are expected to be modest and similar to other flat rates for access to municipal infrastructure or could be based on the quantity of energy transferred with the wastewater.
- 4.2 In addition, the ownership of environmental benefits/attributes may also present a potential financial benefit to the extent that such benefits/attributes can either be marketed or they can be retained and retired against corporate emissions obligations and provide an alternative cost-effective approach to achieving the Region's corporate sustainability objectives. The allocation of any environmental benefits/attributes created through the implied emissions avoidance realized through the displacement of traditional fossil fuels with wastewater energy transfer will be discussed further as part of the ongoing discussions with Creative Energy.

5. Previous Reports and Decisions

- 5.1 [Report #2022-INFO-16](#) "Proposed Wastewater Energy Transfer Project - Dockside Development in the Town of Whitby".

6. Relationship to Strategic Plan

6.1 This report aligns with/addresses the following strategic goals and priorities in the Durham Region Strategic Plan:

a. Goal #1 – Environmental Sustainability

- Accelerate the adoption of green technologies and clean energy solutions through strategic partnerships and investment.
- Demonstrate leadership in sustainability and addressing climate change.

7. Conclusion and Next Steps

7.1 It is recommended that staff from the Works Department, Finance Department, Corporate Services – Legal Services, and the CAO's Office – Strategic Initiatives Division continue further discussions with Creative Energy and Brookfield. Staff will work towards the development of the required MOU and associated agreements, where the Region will enter into those necessary agreements relating to the Dockside Development with the approval of the Commissioners of Works and Finance, and the Regional Solicitor.

7.2 Given this WET project would be the first of its kind in Durham Region, the pilot project will assist in further shaping the development of future policies, standard agreements and protocols to support the pre-screening, review and approval of any future WET projects.

7.3 This report has been reviewed by Corporate Services – Legal Services and the Planning and Economic Development Department.

7.4 For additional information, contact: Joseph Green, Acting Manager, Technical Support, at 905-668-7711, extension 3443.

8. Attachments

Attachment #1: Location Map

Respectfully submitted,

Original signed by:

Jenni Demanuele, CPA, CMA
Acting Commissioner of Works

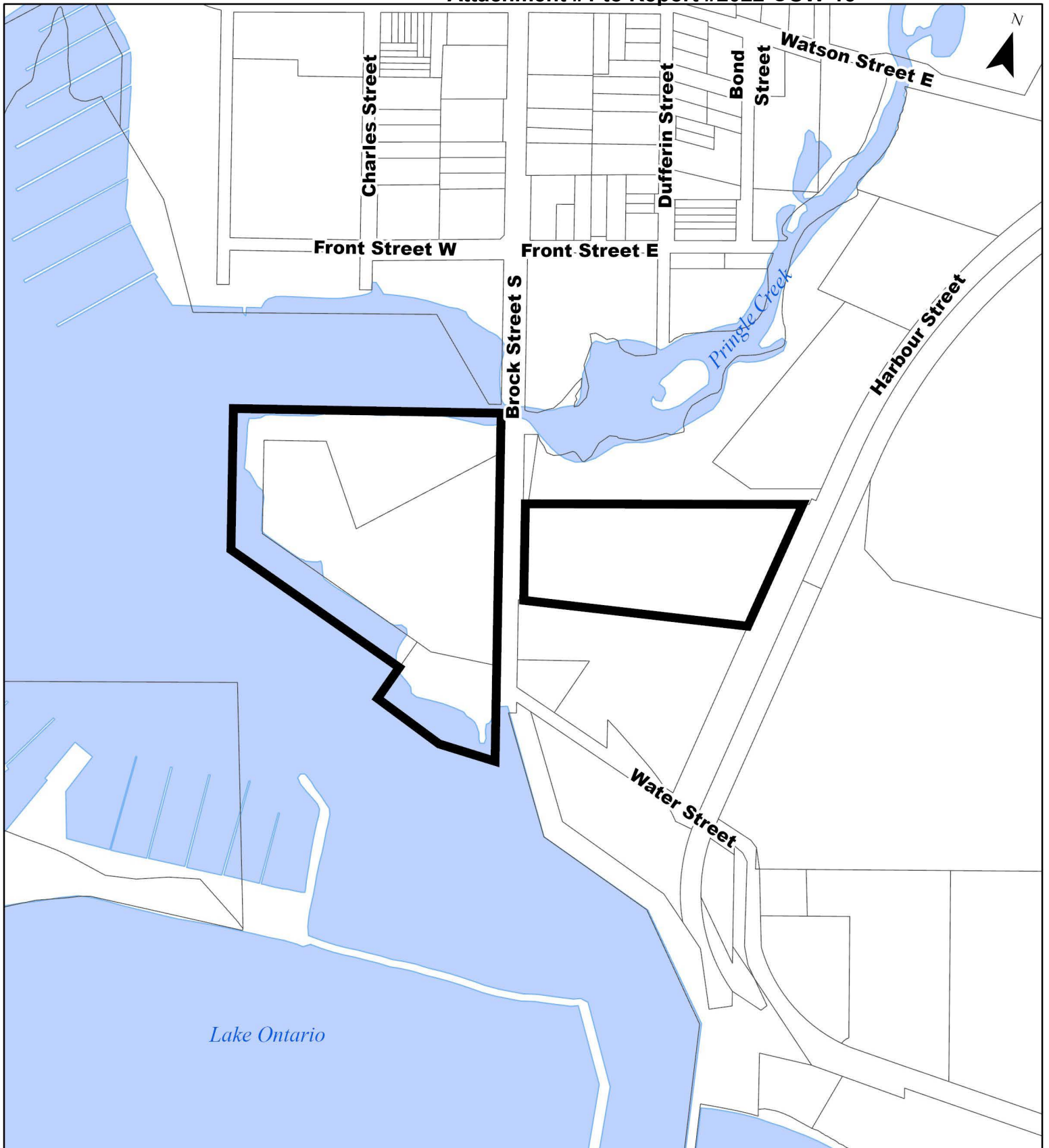
Original signed by:

Nancy Taylor, BBA, CPA, CA
Commissioner of Finance

Recommended for Presentation to Committee

Original signed by:

Elaine C. Baxter-Trahair
Chief Administrative Officer



Brookfield Development Town of Whitby