



OAKVILLE

REPORT

Council

Meeting Date: October 21, 2024

FROM: Corporate Strategy and Government Relations

DATE: October 8, 2024

SUBJECT: **2024 Community Energy Strategy Implementation Update**

LOCATION: Town Hall

WARD: Town-wide

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RECOMMENDATION:

1. That a public ownership model for the proposed hospital district energy system be endorsed in principle with Oakville Enterprises Corporation (“OEC”) as the delivery partner.
2. That staff be directed to explore a partnership with OEC to further assess the creation of a district energy system.
3. That the release of Town funds to Future Energy Oakville (FEO) in the amount of \$50,000 as approved for 2024 and \$50,000 as planned for 2025, be subject to Council's upcoming budget decisions on additional funding being requested by FEO.

KEY FACTS:

The following are key points for consideration with respect to this report:

- This report provides an update on the implementation of the Community Energy Strategy (CES) over the last two years, including actions to advance priority projects including:
 - The completion of the detailed feasibility study for district energy in the hospital district;
 - Partnership with the Heating, Refrigeration and Air Conditioning Institute (HRAI) of Canada to provide heat pump training to contractors;
 - Initiation of research on green development standards in preparation for project launch in 2025; and
 - Promotion of energy literacy through the town's new [Climate Solutions at Home](#) interactive house and [Climate Action Initiatives Interactive Map](#).
- Regarding the District Energy System (DES) in the Hospital District:

- The feasibility study concluded that it is technically feasible and financially viable to construct a DES. The financial analysis showed that for the majority of scenarios the unlevered internal rate of return is within or exceeds the typical profitable range for district energy projects of 8-12%.
- An entity (thermal utility) would need to be created to build and manage such a system.
- The town does not have the financial or technical capability to take ownership of this project.

BACKGROUND:

Community Energy Strategy

A priority action of Council's 2019–2022 Strategic Plan was for the town to facilitate partnerships to develop and implement the town's first [Community Energy Strategy](#) (CES). Council unanimously endorsed the CES in February 2020 which was developed in collaboration between the Town, Sheridan College, and the Oakville Energy Task Force (OETF). The CES established a common community vision for innovation and collaboration to achieve a sustainable energy future and set 2041 community-wide goals for improving energy efficiency, reducing GHG emissions, and enhancing the local economy. The CES represents a significant part of the community's response to Oakville's climate emergency, as declared unanimously by Council in June 2019. Council received two updates on the implementation of the CES on [April 26 2021](#) and [September 19, 2022](#). Following those updates, on [November 20, 2023](#), Council approved that future community energy planning and partnerships proceed with and through FEO.

Community Energy Strategy Priority Projects

The CES recognizes the Town as a key stakeholder in implementation but not the sole actor, reflecting the broad and transformative nature of the 2041 goals and strategic objectives. The CES established 12 priority projects to be completed by 2025 to put the community of Oakville on the right track for achieving the Strategy's 2041 goals. Each priority project serves a long-term strategic objective and has milestones, delivery partners and proposed budgets where possible.

Town's Role and Commitments under the Community Energy Strategy

Along with a call for community-wide action, the CES defines where the Town can best play a role as one of many key stakeholders. These roles include:

- **Convener and Facilitator:** The Town is uniquely positioned to convene and facilitate stakeholders to develop plans, strategies, etc.

- Policy Maker: The Town has to ensure that policies, procedures, and by-laws are aligned with the CES vision and goals to, among other things, enable local stakeholders and others to act in the transitioning energy market.
- Leading by example: The Town must demonstrate corporate leadership in the community.
- Economic Development Supporter: The Town plays a key role in retaining and attracting businesses through the value-added opportunities of achieving the vision and goals of the CES.
- Promoting Energy Literacy and Climate Action: The Town has many opportunities to engage with residents and business owners to promote the benefits of implementing the CES.

Future Energy Oakville

FEO was established in 2021 as an independent, community-based, not-for-profit organization that is supported by the Town of Oakville and forward-thinking investors, community sponsors, and partners.

FEO's mandate is:

“to accelerate the transition to a low-carbon economy through engagement and collaboration with government, local businesses, the community, and other stakeholders. We will coordinate an Oakville tailored approach to this effort focusing on the roadmap outlined in Oakville’s Community Energy Strategy by providing information and engaging the community with talks, workshops showcasing global best practices, innovative solutions and advocating for policy changes. Our approach will be positive and collaborative, with a focus on achieving measurable outcomes to the community.”

The town’s [Services Agreement](#) with FEO was first executed in June 2021 for a 14-month term, ending August 2022. This agreement was then extended in September 2022 for an additional 6 months, ending March 2023. In November 2023, council approved that the term of the agreement shall end on December 31, 2025.

FEO delegates annually to Council, providing a progress and financial update as per the Services Agreement. To date the Town has transferred \$300,000 to FEO, through the capital budget, to support start-up costs. The town has also budgeted additional capital dollars of \$50,000 in 2024 and \$50,000 in 2025.

FEO will delegate at the October 21, 2024, Council meeting to provide an update on work to date and request the release of 2024 funding and 2025 funding, pending Council approval of the 2025 budget. In addition to town funding, FEO has received in-kind support from Sheridan and has received \$180,000 from Suncor, specifically earmarked towards additional fundraising. FEO has attempted to fill its Executive Director position and will provide an update to Council on October 21st. Work to date

includes public education initiatives, such as events and ongoing podcasts, Discovery Workshops and plans to launch a fundraising campaign to secure the resources needed to increase FEO’s ability to support the execution of the CES. This past year, FEO actively participated in the Ontario Geothermal Association Conference 2024 ([OGA24](#)) on May 22, 2024, by assisting the organizers in procuring speakers for the round table segment of the conference. In June, FEO received the report titled “Fund Development Plan and recommendations” which was commissioned to Global Philanthropic, providing FEO with a three-year fund development plan.

COMMENT/OPTIONS:

2020 – 2025 Priority Projects: Town Implementation Update

The table below highlights updates on the progress of CES priority projects, including connections with town program and service areas that support these priority projects. FEO is to accelerate the implementation of 2020–2025 priority projects not currently underway and support the town and other stakeholders to explore opportunities to collaborate on and scale projects.

Strategic Direction	#	2020 – 2025 Priority Project	Status Update	Town Role
Home and Building Efficiency	1.1 1.2	Complete a business case for establishing a company to deliver energy retrofits for homes and buildings in Oakville Incorporate a company to deliver standardized retrofits based on the results of the business case	OEC and town staff delivered a joint workshop to Council on April 4, 2023 that highlighted important changes in the landscape and lessons learned from other municipalities. The path forward that was presented included a focus on homeowner education and outreach to promote the benefits of home energy retrofits and existing incentive and rebate programs available, leading to the creation and launch of the town’s Home Energy Retrofits 101 website and a home energy coach service for Oakville residents, a Town position that was filled in September in the Building Services department.	Convener & Facilitator
Home and Building Efficiency	2.1	Complete a business case for establishing an Energy Performance Labelling	Market scan for existing energy performance labeling programs and confirming scope for a business case.	Lead TBD

Strategic Direction	#	2020 – 2025 Priority Project	Status Update	Town Role
		Program for homes and buildings in Oakville		
Home and Building Efficiency	2.2	Establish Energy Performance Labelling Program based on the results of the business case	Not started pending the conclusion of the market scan to initiate the work on the business case.	
Home and Building Efficiency	3	Implement the Corporate Energy Conservation and Demand Management Plan	GHG emissions reduction of corporate facilities is on schedule to meet the 2030 target established in the 2024 Corporate Energy Conservation and Demand Management Plan . This has been a result of lighting retrofits, energy conservation projects, retro-commissioning at various facilities and an overall increase in staff engagement on energy management initiatives.	Leading by Example
Home and Building Efficiency	4	Continue to integrate CEP home and building efficiency targets into municipal policy, regulations and processes, and ensure municipal measures are identified to achieve this strategy.	Community Green Building Standard (GDS) is planned for development in 2025 Corporate Green Building Standard (GBS) for new construction and retrofits is planned for development in 2025	Policy Maker
Industrial Efficiency	5	Establish a community of practice to share industrial energy management expertise	The Town of Oakville has partnered with the Heating, Refrigeration, and Air Conditioning Institute (HRAI) of Canada, the Town of Halton Hills, and the City of Burlington to offer heating/cooling pump training for individuals working in the energy service business. Participants in the free workshop will learn more about this pump equipment, its	Convener & Facilitator

Strategic Direction	#	2020 – 2025 Priority Project	Status Update	Town Role
			<p>benefits, and how to promote them to potential customers. While this training opportunity is open to the public, it is tailored to those working in the residential and commercial heating/cooling industry.</p> <ul style="list-style-type: none"> • 3 In-person sessions on: September 10, 2024; October 9, 2024; and October 10, 2024 • 3 online training sessions on: October 23, 2024; November 19, 2024; and November 25, 2024 	
Local Energy Supply	6.1	Complete a business case for establishing a company to distribute thermal energy to homes and buildings	<ul style="list-style-type: none"> • District energy prefeasibility study completed in 2022. • Detailed district energy feasibility study completed for the hospital district (Appendix A) 	Convener & Facilitator
Local Energy Supply	6.2	Create a district energy company, based on the results of the business case		
Local Energy Supply	7	Develop Integrated Energy Master Plans (IEMPs) for high growth areas for opportunities for district energy and/or near-net zero neighbourhoods	<ul style="list-style-type: none"> • District Energy prefeasibility study • Hospital District Energy System feasibility study • Alignment with GDS in 2025 • Alignment with GBS in 2025 	Convener & Facilitator Policy Maker
Local Energy Supply	8	Develop Portfolio/Campus Integrated Energy Master Plans (IEMPs)	Scope definition and costing to be further defined as part of the CES update	Lead TBD
Local Energy Supply	9	Continue to integrate CEP local energy supply and distribution	<p>Integration of Community Energy Strategy goals in the planning process, through the following initiatives/working groups:</p> <ul style="list-style-type: none"> • North Oakville Working Group 	Policy Maker Convener &

Strategic Direction	#	2020 – 2025 Priority Project	Status Update	Town Role
		<p>targets into municipal policy, regulation and processes, and ensure municipal measures are identified to achieve this strategy</p>	<ul style="list-style-type: none"> • North Oakville East and West Secondary Plan Review • Official Plan Review <p>Upcoming green development standards work planned for 2025</p> <p>Upcoming corporate green building standard for new construction and retrofits</p> <p>DES prefeasibility study Hospital DES feasibility study</p>	Facilitator
Transportation Efficiency	10	<p>Integrate CEP transportation targets and emissions lens into municipal planning tools and processes as well as master plans (e.g., Switching Gears: Oakville’s Transportation Master Plan, Active Transportation Master Plan, Transit Strategy) and ensure municipal measures are identified to achieve this strategy</p>	<p>As electrification of the town’s fleet progresses, staff will look to develop a holistic Electric Vehicle Plan to address greening the town’s fleet and small equipment in 2025.</p> <p>GHG emissions lens integrated in Urban Mobility and Transportation Strategy, and Community Energy Strategy goals to be considered in the ongoing Transportation Master Plan update.</p>	<p>Leading by Example</p> <p>Policy Maker</p>
Transportation Efficiency	11	<p>Increase public electric vehicle charging stations at municipal owned sites</p>	<p>Through a collaboration with Natural Resources Canada (NRCan), 46 Level 2 electric vehicle charging stations were installed and are available for public use across Oakville.</p>	Leading by Example
Transportation Efficiency	12	<p>Pursue opportunities to electrify local</p>	<p>Collaboration with the Province of Ontario and Government of Canada to begin the transition and expansion of Oakville’s local public</p>	Leading by Example

Strategic Direction	#	2020 – 2025 Priority Project	Status Update	Town Role
		transit and corporate fleets	transit fleet with fully battery-electric buses. Over the next six years approximately 50% of Oakville Transit’s fleet will be converted from diesel to battery electric power.	

Hospital District Energy as a Priority Project

A key deliverable of the town under Strategic Direction 3 (SD3) – Local Energy Supply and Distribution, are a series of Priority Projects which form a roadmap for the development of a district energy utility in Oakville to supply heating and cooling to buildings.

The pre-feasibility project and governance model assessment supported Priority Project 6.1 (Complete a business case for establishing a company to distribute thermal energy to homes and buildings). The purpose of this pre-feasibility study was to provide supporting information on district energy viability in Oakville to potential delivery partners, including Oakville Enterprises Corporation (OEC). In addition, the pre-feasibility study was a step toward achieving Priority Project 6.2 (Create a district energy company, based on the results of the business case).

In 2022, the pre-feasibility study on district energy was completed which included:

- A mapping analysis to identify heating and cooling demand and supply opportunities in Oakville
- Areas for district energy systems
- Detailed analysis on two potential areas of focus:
 - Hospital District
 - Downtown and Kerr
- Lifecycle cost-benefit assessment, emissions reduction potential, economic modelling of the areas of focus
- Recommended area of focus to pursue
- Next steps
 - Based on discussions with the town, the Hospital District was chosen as a site to pursue for a district energy system

Following the completion of the pre-feasibility study in 2022, Rathco ENG Ltd. was engaged by the town, and supported by the Danish Energy Agency, to conduct a detailed feasibility study. This study, now completed, is a continuation of the pre-feasibility study completed in 2022. Urban Equation, commercial experts engaged by Rathco ENG, supported this project.

This detailed feasibility study is organized around 6 milestones (see Appendix A – Town of Oakville - Detailed District Energy Feasibility Study):

- Milestone 1: Develop Scope of Work for Feasibility Study: Town of Oakville
- Milestone 2: Project Kick-off and Basis: Rathco
- Milestone 3: Modelling and Design: Rathco
- Milestone 4: Economic and Financial Analysis: Urban Equation
- Milestone 5: Implementation Planning: Urban Equation
- Milestone 6: Draft and Final Report: Rathco and Urban Equation

The results, findings, and design of the study for the Hospital District include the following key highlights on the proposed system:

- An ambient loop thermal energy distribution system that can transmit heat generated from various sources to buildings and institutions. The heat transfer to and from the ambient loop is achieved via heat exchangers and heat pumps. This loop then sends thermal energy to the buildings and institutions where dedicated energy transfer stations, consisting of pumps, heat exchangers and controls take the place of natural gas boilers, chillers and cooling towers to provide thermal energy for the buildings heating, cooling and domestic hot water needs.
- The current design has 10 phases, starting in 2028 through to 2049 with a waste heat recovery system and a geothermal borefield forming the backbone of the ambient loop district energy system. Waste heat recovery from Halton Region sewer system satisfies early development phases while geothermal and ambient loop system address later phases.
- The following table and figures present the business model results for all 10 phases of the DES, considering with and without a terminal value of the asset. The tables below show that the UIRR (Unlevered internal rate of return) is within or exceeds the typical profitable range for district energy projects of 8-12%.

District Energy System – Including Terminal Value			
Capital Costs	\$201	M	
Operating Costs	\$404	M	
TOTAL COSTS	\$606	M	
Thermal Energy Sales	\$586	M	
Connection Charges	\$117	M	
Terminal Value	\$470	M	
TOTAL REVENUE	\$1,173	M	
TOTAL PROFIT (FV)	\$706	M	
UIRR (pre-tax, excluding funding/financing)	13.3	%	

District Energy System – Excluding Terminal Value			
Capital Costs	\$201	M	
Operating Costs	\$404	M	
TOTAL COSTS	\$606	M	
Thermal Energy Sales	\$586	M	
Connection Charges	\$117	M	
Terminal Value	\$0	M	
TOTAL REVENUE	\$703	M	
TOTAL PROFIT (FV)	\$236	M	
UIRR (pre-tax, excluding funding/financing)	10.7	%	

In the study, two ownership models are considered: private and public.

1. 100% private ownership: owned by private developer / investor
2. 100% public ownership: owned by the town or a subsidiary of the town

Benefits of a public ownership model include:

1. Rate control and stability: Public ownership allows for more stability through rate control as it is not purely driven by profits, but rather municipal mandate.
2. Policy and regulation framework for connections: Public ownership provides greater flexibility in using policy and regulatory tools to promote customer connections to the DES.
3. Access to funding and low-cost capital: Public entities have access to funding opportunities including grants, subsidies, and low-interest loans.
4. Returns: Any potential returns or positive business cases can be controlled and benefited by the public entity.

The town does not have the financial or technical capability to take ownership of this project due to its complexity and therefore, staff are recommending an exploratory partnership with Oakville Enterprises Corporation (OEC) to further assess the creation of a district energy system.

Ninety percent of OEC is owned by the town and 10 percent is owned by an Enbridge entity. OEC and its subsidiaries may engage in business activities as its board may authorize that are permitted by applicable laws. This would include the proposed district energy system. OEC is expected to provide the town and Enbridge with a reasonable return on their respective investments, which the detailed feasibility study demonstrates. Accordingly, as long as the DES does not negatively impact OEC's return to its shareholders, OEC could deliver most of the public ownership benefits anticipated above.

Following the discussions to be had between the town and OEC about an exploratory partnership, if OEC is supportive of a decision to own, fund, and operate a DE system, a Memorandum of Understanding between the Town and OEC on the development and implementation of a district energy system will be negotiated and presented to Council for review and approval, including ownership terms and considerations, direct and indirect financial implications to the town, required policy and advocacy support by the town, an implementation timeline, funding options, and request for approval to proceed.

If OEC is unable to proceed with the implementation, staff would return to Council with considerations and requirements related to pursuing a private ownership model that would be pursued through an open market request for proposals (RFP).

For greatest clarity, staff has prepared financial principles and considerations to help guide discussions with OEC on this matter, which are outlined as follows:

- That the costs of the proposed district energy system be incurred by OEC, with no impact on the town's finances.
- That the existing and expected dividends provided to the shareholders by OEC's other operations remain unaffected by this proposed system.
- That the financing for this system be provided by OEC and not rely upon financing from the town (either debt or use of the town's reserves).

Indirect financial impacts due to policy or advocacy support for this project will be examined in detail during the next exploration phase. Impacts and concerns will be shared with the town's Executive Leadership Team (ELT) and council before approval of the project. Regarding external financial implications, the business case already considers the system as a potential revenue stream for Halton Region due to the sewer heat recovery component of the project as well as a nominal land acquisition cost specifically relating to the location of the central plant which the study identifies to either be on Infrastructure Ontario or OEC land.

CONSIDERATIONS:

(A) PUBLIC

Community stakeholders have committed significant hours to date to support the setup and establishment of Future Energy Oakville. Significant community engagement also went into the development of the Community Energy Strategy.

(B) FINANCIAL

To-date, the Town, through the capital budget, has approved \$300,000 for FEO to support start-up costs, based on the below breakdown:

2020: \$100,000

2021: \$100,000

2022: \$50,000

2023: \$50,000

2024: \$50,000

2025: \$50,000

(C) IMPACT ON OTHER DEPARTMENTS & USERS

The energy initiatives led by the Town that directly support implementation of the Community Energy Strategy's 2020-2025 priority projects are being spearheaded and supported by several departments including: Corporate Strategy and Government Relations; Facilities and Construction Management; Finance; Legal Services; Municipal Enforcement Services; Oakville Transit; Planning Services; and Transportation and Engineering.

(D) COUNCIL STRATEGIC PRIORITIES

This report addresses the corporate strategic priorities:

- Environmental Sustainability - Ensuring environmental sustainability to meet future needs related to greenspaces, natural areas, and act on climate change mitigation and adaptation
- Growth Management - Managing growth for a vibrant local economy, meeting infrastructure needs and ensuring we have complete communities and efficient mobility across the town
- Accountable Government - Providing accountable government for excellence in service delivery and responsible management of resources

(E) CLIMATE CHANGE/ACTION

Progress on the priority projects outlined in the Community Energy Strategy is fundamental to mitigating our community's impact to climate change. The Community Energy Strategy provides the pathway to achieving an ambitious greenhouse gas reduction goal that supports a livable, sustainable and resilient energy future for Oakville.

APPENDICES:

Appendix A – Town of Oakville - Detailed District Energy Feasibility Study

Appendix B – Presentations by Rathco and Urban Equation

Appendix C – Outstanding Council Report Back - City of Guelph Greener Homes Program Memo

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