

## Report to Corporate Services Committee

**To:** Chair and Members,  
Corporate Services Committee

**From:** Anna Lisa Barbon, CPA, CGA  
Deputy City Manager, Finance Supports

**Subject:** Single Source SS-2024-277 J Allyn Taylor Heating System

**Date:** August 14, 2024

## Recommendation

That, on the recommendation of the Deputy City Manager, Finance Supports, the following actions be taken with respect to the procurement of a replacement heating system for the J Allyn Taylor building (Single Source # SS-2024-277):

in accordance with Sections 14.4(d) and 14.4(e) of the Procurement of Goods and Services Policy, Civic Administration **BE AUTHORIZED** to engage CIMCO to design, supply and install a suitable heating system and related auxiliary equipment;

the financing for this project **BE APPROVED** as outlined in the attached Source of Financing report (Appendix "A");

Civic Administration **BE AUTHORIZED** to undertake all the administrative acts that are necessary in connection with this assignment; and,

The Mayor and City Clerk **BE AUTHORIZED** to execute any contract or other documents including agreements, if required, to give effect to these recommendations.

## Executive Summary

This report seeks the approval of Council for a single source procurement for the design, engineering, supply, installation, and commissioning of a new heating system from CIMCO Refrigeration. This is required to ensure the heating system at the J Allyn Taylor building, 267 Dundas St., is operational prior to the disconnection of the Enwave Energy Corporation low pressure steam supply line.

Enwave Energy Corporation, previously London District Energy, provides steam and chilled water for heating and cooling purposes to several facilities in the downtown core and to hospital facilities north and south of the core. On May 27, 2024, Enwave indicated their intention to cease operating the low-pressure steam line along Dundas Street by May 2025. The discontinuation of the low-pressure steam supply line will affect the building heating system at the J Allyn Taylor building at 267 Dundas St. The City will need to transition the heating system from a centralized supply of steam to an in-building heating source. CIMCO Refrigeration is our current HVAC (Heating, Ventilation, and Air Conditioning) Repairs and Service Contractor and has been engaged to begin the process to investigate options to convert the building over to an independent hot water boiler system.

## Linkage to the Corporate Strategic Plan

### Well-Run City

The City of London is a leader in public service.

3.3 The City of London has effective facilities and infrastructure management.

- Build, maintain and operate facility assets to provide expected levels of service and optimize reliability and functionality.

# Analysis

## 1.0 Background Information

### 1.1 Previous Reports Related to this Matter

None

### 1.2 Services Provided by Enwave

In 1992, the City of London entered the most recent service contract with London District Energy (now known as Enwave Energy Corporation) to provide chilled water for cooling, and steam for heating services from the centralized district energy plant located at Bathurst and Colborne Streets. The service contract includes primary heating and cooling at City Hall, Centennial Hall, RBC Place, Museum London, London Public Library (Central Library) as well as the J. Allyn Taylor Building.

A district energy system is an efficient design that connects several buildings with differing energy profiles to a centralized energy plant. Providing both heating and cooling from a centralized plant usually requires less fuel and eliminates the need to install separate space heating and cooling as well as hot water systems in each building. District energy systems eliminate the need to invest capital in on-site equipment, frees up building space and reduces maintenance and insurance costs.

### 1.3 Decommissioning Low Pressure Steam Line

On May 27, 2024, Enwave indicated their intention to cease operating the low-pressure steam line along Dundas Street by May 2025. Due to the significant capital costs to replace the line, combined with limited customers in that zone, Enwave has made the financial decision to discontinue steam services in that area. Enwave has indicated that this is the oldest section of their system and is at the end of its serviceable life.

Approximately 1,700 metres of pipe supply steam in this zone, some of which passes through the basements of buildings on Dundas St. (700 m). The remaining 1,000 m of pipe is buried under street infrastructure. Enwave proposes to remove all piping within buildings and leave in place the under-street pipes which will be lined and capped.

The J. Allyn Taylor building (267 Dundas St.) is impacted by Enwave's decision. The discontinuation of the low-pressure steam supply will impact the building heating systems. The City will need to transition the facility from steam heat to an independent in-building heating source. The facility will still utilize chilled water for cooling that will continue to be provided by Enwave.

A medium pressure steam supply line that services City Hall, Centennial Hall, Museum London, RBC Place and Budweiser Gardens is not impacted at this time.

### 1.4 Independent In-Building Heating System Options

Facilities staff have been working to investigate viable solutions to replace the steam heating system. Feasibility, overall cost, operating efficiency, project complexity, ease of implementation and reliability were considered, resulting in four possible options which are summarized below:

#### Option #1: Heat Pump System

Option #1 would involve the installation of a multi-zone, heat pump system, designed to provide both heating and cooling across multiple zones within the building. This system

would utilize multiple rooftop-mounted condensers for each floor, allowing for thermal energy exchange throughout. This option would allow for simultaneous heating and cooling in different zones, optimizing energy use and occupant comfort.

**Advantages:**

- **Lower Carbon Footprint:** The heat pump system operates with high energy efficiency, reducing greenhouse gas emissions compared to traditional HVAC systems.
- **Integrated System:** This system would reduce the need for chilled water and simplify the overall mechanical infrastructure.
- **Mechanical Room Impact:** Mechanical room would not be impacted, as infrastructure would be installed throughout each floor.

**Disadvantages:**

- **Extensive Design and Engineering:** Implementing a heat pump system would require a complete redesign of the current mechanical systems, integrating new piping, controls, and distribution networks. Existing components would not be compatible.
- **High Capital Costs:** The initial capital investment for a heat pump system would be significant due to equipment and installation costs.
- **Disruptive Construction Process:** The installation process will be highly intrusive, requiring the ceiling grid to be removed and the occupants to be temporarily relocated.
- **Schedule Concerns:** This would be a complex project requiring more time, and it may not be possible to meet the deadline imposed by Enwave's decision.
- **Possible Structural Concerns:** Condenser(s) would need to be installed on the roof. Further investigation would be required to confirm the roof can support the additional load.

Estimated Minimum Cost: \$1,350,000.00

*Plus additional cost associated with relocating staff during construction.*

*Plus potential structural work*

## **Option #2: Natural Gas Fired Boilers**

Option #2 would involve the installation of two high-efficiency condensing natural gas-fired boilers. These boilers would provide a dedicated source of hot water that would be designed to replace the current steam system throughout the building. Natural gas-fired boilers operate by combusting natural gas to heat water, which is then circulated through the building's existing distribution system to provide warmth.

**Advantages:**

- **Proven Technology:** Natural gas-fired boilers are a well-established technology with a long track record of reliability and performance.
- **Low Equipment Costs:** The initial cost of purchasing the boilers is relatively low compared to other heating solutions.
- **Minor Design Changes:** The existing mechanical infrastructure can be utilized without the need for extensive redesign, simplifying the installation process.
- **Scheduling:** This option would allow for enough time to complete the installation to meet the deadline imposed by Enwave's decision.

**Disadvantages:**

- **Increased Carbon Footprint:** Natural gas combustion results in the emission of greenhouse gases, increasing the building's overall carbon footprint. This does not align with Climate Emergency Action Plan goals and strategic directions.
- **High Installation Costs:** While equipment costs are low, the installation costs are high due to the complexity of the natural gas piping required for these units.
- **Potential Venting Concerns:** The feasibility of venting must be carefully assessed due to the size and location of the building. Further investigation would be required to determine if combustion gases can be safely expelled from the building. This is an additional complexity and cost that cannot be verified at this time.

- **Mechanical Room Impact:** A new mechanical room would be required to house both natural gas boilers. The clearances would require us to occupy an entire storage room that is currently used by Tourism London.

Estimated Minimum Cost: \$605,000.00

*Plus potential additional costs associated with venting*

### **Option #3: Electric Boilers**

Option #3 involves installing three electric boilers to replace the current steam heating system. Electric boilers use electrical resistance to generate heat, which is then transferred to water, creating hot water that is used to heat the building. This system is known for its high efficiency and minimal emissions, making it a sustainable heating option.

Advantages:

- **Environmentally Friendly:** Electric boilers produce no on-site emissions, resulting in a low carbon footprint.
- **Minor Design Changes:** The existing mechanical infrastructure can be utilized without the need for extensive redesign, simplifying the installation process.
- **Efficient:** Electrical heating elements provide rapid and efficient heat generation.
- **Strategic Alignment:** This is consistent with our Climate Emergency Action Plan and our commitment to GHG avoidance and reduction.

Disadvantages:

- **Inadequate Electrical Supply Infrastructure:** The current electrical service cannot support the power demand of three electric boilers. Significant, costly upgrades to the local electrical system would be required. This would also cause disruptions to the Dundas St. Sidewalk and portion of the roadway.
- **Utility Confirmation Required:** The local utility must confirm the feasibility of upgrading the electrical infrastructure to support the additional load.
- **Electrical Infrastructure Upgrades:** Significant upgrades to the building's interior electrical infrastructure will also be necessary, including a new transformer, duct bus, electrical conductors, and main switchgear.
- **Very High Installation Costs:** The cost of upgrading the electrical system and installing the boilers is very high.
- **Scheduling:** The complexity of the required electrical upgrades may lead to delays, potentially preventing the project from being completed before the deadline imposed by Enwave's decision.
- **Mechanical Room Impact:** The basement meeting room would need to be used to house the electric boilers. This would have minimal impact to departments that occupy the facility.

Estimated Cost: \$1,404,000.00

### **Option #4: Hybrid Boiler System (Combination of Gas Fired and Electric Boilers)**

Option #4 would involve the installation of a hybrid boiler system. The system combines the installation of one electric boiler and one natural gas-fired boiler. In this configuration, the electric boiler will serve as the primary heating unit, providing the majority of the building's heating needs, while the gas-fired boiler will act as the secondary unit that will only activate on colder days when required.

#### Advantages:

- **Redundancy:** A reliable natural gas-fired boiler will provide an alternate heat source in case of a power outage impacting the electric boiler.
- **Minor Design Changes:** The existing mechanical infrastructure can be utilized without the need for extensive redesign, simplifying the installation process.
- **Reduced Carbon Footprint:** The hybrid system has a lower carbon footprint compared to an all-natural gas option, with the inclusion of the electric boiler.
- **No Electrical Infrastructure Upgrades Required:** The hybrid system does not require a complete overhaul of the electrical infrastructure, reducing installation complexity and cost. The building has the capacity to supply one electrical boiler.
- **Simpler Venting Installation:** The venting requirements for a single natural gas-fired boiler are easier to accommodate than venting for two natural gas boilers.
- **Scheduling:** This option would allow for enough time to complete the installation to meet the deadline imposed by Enwave's decision.

#### Disadvantages:

- **Partially Environmentally Friendly:** Although the hybrid system reduces carbon emissions compared to an all-natural gas solution, it does not have the same GHG reductions as a completely electric boiler system.
- **Higher Cost Than All-Gas Option:** The hybrid system is more expensive than an all-natural gas option due to the inclusion of the electric boiler.
- **Mechanical Room Impact:** The basement meeting room would need to be used to house the electric boiler. This would have minimal impact to departments that occupy the facility. The single natural gas fired boiler would need to be installed in the storage room that is currently used by Tourism London. We believe it would only require a portion of the storage room.

Estimated Cost: \$810,000

### 1.5 Analysis and Recommendation

After conducting a detailed evaluation of the heating system options for the J Allyn Taylor facility, we recommend proceeding with Option #4: the Hybrid Boiler System at an estimated cost of approximately \$810,000.

This system, which integrates one electric boiler as the primary heating source and one gas-fired boiler as a backup, offers a balanced approach to our heating requirements. The Hybrid Boiler System provides substantial environmental benefits by significantly reducing our carbon footprint compared to an all-natural gas boiler system, aligning with our Climate Emergency Action Plan principles. This option also avoids the extensive and costly electrical infrastructure upgrades needed for an all-electric system.

Operational reliability is enhanced with the hybrid configuration, as the natural gas-fired boiler serves as a backup, ensuring continuous heating supply and mitigating risks associated with sole dependence on the electric boiler. Additionally, the hybrid system simplifies the installation process, requiring less complex venting solutions compared to the all-natural gas option.

While the hybrid option is more costly than the all-natural gas solution, the combination of reduced environmental impact, relative cost-effectiveness, and feasible installation requirements makes it the most practical and sustainable choice for meeting our long-term operational and environmental objectives.

## 1.6 Climate and Operational Impacts

A preliminary analysis of the various options considered suggests the recommended option of a hybrid electric and natural gas boiler system is a good compromise to meet financial and environmental objectives. A comparison of the estimated annual energy consumption, greenhouse gas emissions and operating costs is presented in Table 1.

**Table 1**

System	Annual Estimated Energy Consumption (kWh)	Annual GHG emission (tCO <sub>2</sub> e)	Estimated Annual Operating Cost (\$)
Existing System Steam	389,336	115	62,294
Option #1 Elec HP + Elec Boiler	272,535	7	43,606
Option #2 NG Boiler only	397,282	71	11,962
Option #3 Electric Boiler only	668,870	18	60,834
<b>Option #4</b> Elec Boiler + NG Boiler	<b>393,309</b>	<b>41</b>	<b>37,128</b>

Environmentally, the electric boiler significantly reduces greenhouse gas emissions compared to the current steam system or an all-natural gas system. This supports our Climate Emergency Action Plan goals and objectives and contributes to a lower overall carbon footprint. Though a hybrid system may not have the same reductions in GHG's as an all-electric system, the hybrid approach offers a reasonable compromise by combining a cleaner energy source with a practical backup.

Operationally, the hybrid system enhances reliability and flexibility. The electric boiler, as the primary heating unit, ensures efficient performance with reduced GHG emissions, while the gas-fired boiler provides redundancy, reducing the likelihood of heating system failures.

In terms of operating expenses, the hybrid system is anticipated to offer moderate energy cost reductions. The use of electricity for the primary heating reduces reliance on natural gas, which can fluctuate in price, potentially leading to more predictable energy expenditures. Maintenance-wise, the system requires regular servicing of both the electric and gas boilers. The electric boiler typically demands less maintenance compared to gas systems, which can involve more frequent checks of combustion systems and venting infrastructure.

Overall, while the hybrid system requires a higher capital investment than an all-natural gas system, its operational and maintenance efficiencies, combined with its reduced environmental impact, make it the reasonable choice to replace the current steam heating system, noting that this change was imposed upon the City and was not planned or anticipated.

## 2.0 Discussion and Considerations

### 2.1 Rationale for Single Source Procurement

To ensure service is not disrupted at the J Allyn Taylor building, Facilities is seeking authorization for a one-time procurement of a heating system and related auxiliary equipment utilizing the single source procurement clause as outlined in section 14.4(d) and (e) of the Procurement of Goods and Services Policy (see below).

CIMCO Refrigeration is the current HVAC service and repair contractor for the City of London and have provided excellent customer service to the City of London. In addition

to maintenance and repair services, CIMCO offers full engineering, design, installation and commissioning services for commercial HVAC systems.

This means that CIMCO could provide a “turnkey” solution for the heating system at the J Allyn Taylor building. Having one point of accountability, including fabrication of components, reduces cost and schedule risks to the project.

Installing an alternate heating system is a time sensitive project that must be complete and operational before the heating season. If Civic Administration were to undertake a competitive procurement process, several months would be added to the project timelines jeopardizing the schedule.

For the reasons noted above, Civic Administration seeks to enter a contract with CIMCO Refrigeration utilizing the single source procurement clauses outlined in section 14.4(d) and (e) of the Procurement of Goods and Services Policy.

#### Section 14.4 of the Procurement of Goods & Services Policy

##### 14.4 Single Source

Single Source means that there is more than one source of supply in the open market, but only one source is recommended due to predetermined and approved specifications. The procurement may be conducted using a Single Source process if the goods and/or services are available from more than one source, but there are valid and sufficient reasons for selecting one supplier.

(d) There is a need for compatibility with goods and/or services previously acquired or the required goods and/or services will be additional to similar goods and/or services being supplied under an existing contract (*i.e.*, contract extension or renewal).

(e) The required goods and/or services are to be supplied by a particular supplier(s) having special knowledge, skills, expertise or experience;

### **3.0 Financial Impact/Considerations**

The estimated project budget for the heating system is approximately \$810,00, excluding taxes. This project can be funded within our approved Life Cycle Replacement budgets for Municipal Buildings GG1545 as well as TS6217 Facility Energy Management Fund.

However, to finance this project, several Life Cycle Replacement projects will need to be deferred to future years. This would include roofing, HVAC, lighting and paving projects at J Allyn Taylor and several other facilities. Building Automation system upgrades and facility assessments funded from the Facility Energy Management Fund would also need to be deferred.

Funding for the project is confirmed in the attached Appendix A – Source of Financing.

## **Conclusion**

This report seeks Council approval for a single source procurement to design, engineer, supply, install, and commission a new heating system from CIMCO Refrigeration for the J Allyn Taylor building at 267 Dundas St. This step is crucial to ensure an independent in-building heating system is operational before the Enwave Energy Corporation's low-pressure steam supply line is disconnected in May 2025.

CIMCO Refrigeration, our current HVAC Repairs contractor, has the expertise to manage this critical project. Engaging CIMCO to design and implement a hot water boiler

system will ensure a seamless transition, maintaining operational efficiency and reliability for the building's heating needs.

Based on a thorough analysis of all available option and in accordance with Section 14.4(d) of the Procurement of Goods and Services Policy, it is recommended to proceed with the single source procurement from CIMCO Refrigeration. This decision ensures the timely and effective conversion of the heating system, aligning with both our operational and sustainability goals and secures the necessary heating infrastructure for the J Allyn Taylor building.

**Prepared by:** Val Morgado, Senior Manager Facilities, Finance Supports.

**Submitted by:** Lynda Stewart, Director Fleet and Facilities, Finance Supports.

**Recommended by:** Anna Lisa Barbon, Deputy City Manager, Finance Supports.



**Appendix "A"**

#24163

August 14, 2024  
(Award Contract)

Chair and Members  
Corporate Services Committee

RE: Single Source SS-2024-277 J Allyn Taylor Heating System  
Capital Project GG154523 - Municipal Buildings LCR (Work Order 2620195)  
Capital Project GG154524 - Municipal Buildings LCR (Work Order 2620194)  
Capital Project TS621723 - Facility Energy Management (Work Order 2620804)  
CIMCO Refrigeration - \$810,000.00 (excluding HST)

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**Finance Supports Report on the Sources of Financing:**

Finance Supports confirms that the cost of this project can be accommodated within the financing available for it in the Capital Budget and that, subject to the approval of the recommendation of the Deputy City Manager, Finance Supports, the detailed source of financing is:

<b>Estimated Expenditures</b>	<b>Approved Budget</b>	<b>Committed To This Date</b>	<b>This Submission</b>	<b>Balance for Future Work</b>
<b>GG154523 - Municipal Buildings LCR</b>				
Engineering	50,000	30,338	0	19,662
Construction	260,000	148,833	76,320	34,847
Contingency	32,000	0	0	32,000
<b>GG154523 Total</b>	<b>342,000</b>	<b>179,171</b>	<b>76,320</b>	<b>86,509</b>
<b>GG154524 - Municipal Buildings LCR</b>				
Engineering	3,181	3,181	0	0
Construction	432,480	0	432,480	0
Contingency	13,943	0	0	13,943
<b>GG154524 Total</b>	<b>449,604</b>	<b>3,181</b>	<b>432,480</b>	<b>13,943</b>
<b>TS621723 - Facility Energy Management</b>				
Construction	500,000	9,455	315,456	175,089
<b>TS621723 Total</b>	<b>500,000</b>	<b>9,455</b>	<b>315,456</b>	<b>175,089</b>
<b>Total Expenditures</b>	<b>\$1,291,604</b>	<b>\$191,807</b>	<b>\$824,256</b>	<b>\$275,541</b>
<b>Sources of Financing</b>				
<b>GG154523 - Municipal Buildings LCR</b>				
Drawdown from City Facilities Renewal Reserve Fund	342,000	179,171	76,320	86,509
<b>GG154523 Total</b>	<b>342,000</b>	<b>179,171</b>	<b>76,320</b>	<b>86,509</b>
<b>GG154524 - Municipal Buildings LCR</b>				
Drawdown from City Facilities Renewal Reserve Fund	449,604	3,181	432,480	13,943
<b>GG154524 Total</b>	<b>449,604</b>	<b>3,181</b>	<b>432,480</b>	<b>13,943</b>
<b>TS621723 - Facility Energy Management</b>				
Capital Levy	500,000	9,455	315,456	175,089
<b>TS621723 Total</b>	<b>500,000</b>	<b>9,455</b>	<b>315,456</b>	<b>175,089</b>
<b>Total Financing</b>	<b>\$1,291,604</b>	<b>\$191,807</b>	<b>\$824,256</b>	<b>\$275,541</b>

## Appendix "A"

#24163

August 14, 2024  
(Award Contract)

Chair and Members  
Corporate Services Committee

RE: Single Source SS-2024-277 J Allyn Taylor Heating System  
Capital Project GG154523 - Municipal Buildings LCR (Work Order 2620195)  
Capital Project GG154524 - Municipal Buildings LCR (Work Order 2620194)  
Capital Project TS621723 - Facility Energy Management (Work Order 2620804)  
CIMCO Refrigeration - \$810,000.00 (excluding HST)

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<b>Financial Note:</b>	<b>GG154523</b>	<b>GG154524</b>	<b>TS621723</b>	<b>Total</b>
Contract Price	\$75,000	\$425,000	\$310,000	\$810,000
Add: HST @13%	9,750	55,250	40,300	105,300
Total Contract Price Including Taxes	84,750	480,250	350,300	915,300
Less: HST Rebate	-8,430	-47,770	-34,844	-91,044
Net Contract Price	\$76,320	\$432,480	\$315,456	\$824,256

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Jason Davies

Manager of Financial Planning & Policy

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