

Downtown District Energy Initiative - Expansion Opportunities

Development Update

Recommendation

That Executive Committee recommend to City Council:

1. That the definitive agreements between the City of Edmonton and EPCOR Utilities Inc. (or an affiliate), for the design, build, financing, operation and maintenance of the Downtown District Energy System, as outlined in Attachment 1 of the February 1, 2021, Integrated Infrastructure Services report CR_8257, be approved, and that the agreements be in form and content acceptable to the City Manager.
2. That Administration develop a strategy, through a reallocation of funded operating programs, in advance of the 2023-2026 Operating Budget, to address any incremental operating funding shortfalls of the Downtown District Energy initiative.

Previous Council/Committee Action

At the April 15, 2020, City Council meeting, the following motion was passed:

That Administration continue to work with EPCOR or other potential private utility partners on the feasibility and business case for future expansions to the system, and return to Committee with a status report in First Quarter 2021.

Executive Summary

The Downtown District Energy Initiative supports City Council's 10-year Climate Resilience objectives, the recently approved City Plan, and Edmonton's current Community Energy Transition Strategy.

In recent months, work has advanced to further analyze the technical, regulatory, and financial components of the Initiative. With the goal of providing a pathway into deeper carbon reductions, EPCOR, with the support of Administration, is proposing a lower temperature District Energy System which will have the capability of also providing cooling energy in addition to heating at the onset. Both parties are proposing agreements for the design, build, financing, operation and maintenance of the Downtown District Energy Initiative. The District Energy System would be owned by

the City, EPCOR would be responsible for installing and operating the system, and the City would pay EPCOR for the capital and operating costs over the term of the agreements. Further operational funding may be required from the City to support the capital and operating costs. Work is underway at Winspear to construct the District Energy Shell Building. The construction timelines for the building and the district energy infrastructure are aligned with the overall Winspear expansion completion, so that heat can be provided at the time of full completion.

Report

The Downtown District Energy Initiative supports City Council's 10-year Climate Resilience objectives, the recently approved City Plan, and Edmonton's Community Energy Transition Strategy. During the 2020 Spring Capital Budget Adjustment deliberations, Council approved funding for the first phase of the Downtown District Energy Initiative. This includes a Central District Energy Plant located at the Winspear providing electrical and thermal energy to the Winspear, Century Place and Chancery Hall.

This report provides an update of the overall development of the Initiative, specifically as it relates to the work conducted with EPCOR and Winspear.

Memorandum of Understanding with EPCOR

On July 22, 2020, EPCOR and the City of Edmonton entered into a Memorandum of Understanding ("MOU") that outlines both parties' commitment to the project and necessary steps for joint project development.

Within the August 31, 2020, Integrated Infrastructure Services report CR_8368, Administration proposed a District Energy System that would be based on providing electricity and heat energy to the Winspear, Century Place and Chancery Hall buildings, with the opportunity to provide cooling at a later stage. In recent months, work has advanced further analyzing the technical, regulatory, and financial components of the Initiative. To provide a pathway into deeper carbon reductions, EPCOR, with the support of Administration, advanced the design and financial work of additional technical district energy solutions.

EPCOR is proposing a lower temperature District Energy System which will have the capability of also providing cooling energy in addition to heating at the onset.

The advancement of the design and an evaluation by EPCOR's contractors confirmed that this alternate option could be constructed for the same or less cost as the original heat only system but also provided additional benefits. This included the opportunity to better integrate distributed heating and cooling sources, increased GHG reduction,

better operating redundancy, and increased avoidance of future infrastructure investments. The proposed design concept around this option also aligns with the opportunity for further growth and expansion of the network into the downtown core leading to additional greenhouse gas benefits.

Proposed Agreement with EPCOR

EPCOR and Administration are proposing entering into a set of agreements for the Downtown District Energy Initiative. Terms for these and other definitive agreements are summarized in more detail in Attachment 1 of this report.

The proposed agreement structure with EPCOR has many attributes typically found within a Public-Private-Partnership (P3) agreement. As such, the City's Public-Private Partnership Policy C555 was considered, though the project cost is under the minimum project cost benchmark of \$30 million in the Policy. The Downtown District Energy project did not undergo a detailed P3 screening process. However, components of the business case and financial analysis undertaken by EPCOR demonstrates a value for money benefit and an acceptable risk sharing model to support entering into this commercial arrangement with EPCOR.

- **Governance**: The initiative will be city-owned and managed through the agreements between EPCOR and the City. This includes the development of a future oversight framework by EPCOR and the City to guide the joint strategic planning and growth of the system.
- **Project Delivery**: EPCOR will design, build, finance, operate, and maintain the project and will enter into agreements with the City for the Downtown District Energy Initiative. In this capacity, EPCOR will enter into contracts with system designers, consultants, and contractors.
- **Technology**: EPCOR will implement a lower temperature District Energy System which will have the capability of also providing cooling energy in addition to heating and electricity at the onset. With the proposed technology, the City will continue coordinating the connection to the city-owned buildings, including any necessary building modifications and operational details.
- **Financing**: Capital Profile 20-83-9001, Downtown District Energy Initiative, includes \$27.9 million in approved funding to allow for the construction of the District Energy System. On August 17, 2020, City Council approved the third reading of borrowing Bylaw 19365 for the self-liquidating debt portion of the \$27.9 million project in the amount of \$13.8 million. Instead of the City of Edmonton borrowing the \$13.8 million through the Province, EPCOR will finance the \$13.8 million through a combination of debt and equity under the

proposed agreement structure. EPCOR will earn a return on the equity investment commensurate with the level of risk associated with the project.

- Commercial and Funding Arrangements: The agreements will include a term of 30 years during which EPCOR will recover the costs to design, build, finance, operate and maintain the District Energy System. EPCOR will be compensated for the financing and operations and maintenance work required by the agreements, in an amount estimated at \$2.4 million annually (uninflated), through the recovery of thermal and electrical energy rates from the three buildings and payment of a fee from the City.
- Agreements with Winspear: EPCOR will enter into a long term lease agreement with Winspear for the occupation of the energy centre building. The lease costs will be incorporated into the agreements between EPCOR and the City.
- Regulation: EPCOR, with City support, will develop the regulatory application to the Alberta Utilities Commission and other agencies, for the installation and connection of the combined heat and power plant. These applications will be submitted under the City as the owner.

A summary of the proposed concept's key financial and operational parameters can be found in Attachment 2 of this report.

Alignment with Edmonton's Community Energy Transition Strategy

On August 27, 2019, Edmonton City Council declared a climate emergency. Council directed Administration to develop an updated Community Energy Transition Strategy and accelerate actions that will limit Edmonton's emission contribution to levels aligned with a global average temperature increase of no more than 1.5 degrees Celsius.

Previous technical analysis concluded that district energy, eventually fuelled through renewable sources, will play a prominent role in supporting both the City's and the Edmonton community's greenhouse gas emissions reduction strategies. A fully built out district energy system network will contribute over four percent toward the overall emissions reductions needed in the community. A fully built-out downtown district energy system represents a significant opportunity as the initial model forecasted such a downtown system would achieve half of the overall reductions from district energy.

Building upon the current Community Energy Transition Strategy, the draft updated strategy promotes the pathway of "renewable and resilient energy transition in Edmonton". The Downtown District Energy Initiative supports the goal of "Edmonton is a thriving city powered by low carbon energy" and the strategy of "Plan for and enable the development of community renewable energy projects and the expansion of a renewable district energy network". To support these outcomes, the updated strategy

will include actions related to developing a district heating and cooling energy network strategy that identifies primary district energy nodes, and the development of the first two primary district energy nodes in Blatchford and Downtown”.

Administration will also look at the potential for utilizing the District Energy Center as a future ‘resilience hub’ in the event that the electricity grid is down for a length of time in the Edmonton downtown or larger community due to extreme weather or for any other reason.

Construction of Building Shell and Integration with Winspear

The Downtown District Energy project involves constructing the District Energy Shell Building on city lands currently leased to the Francis Winspear Centre for Music. The shell building structure is integrated into the building that is currently under construction as part of the Winspear Centre expansion project. Following Council’s August 31, 2020, approval of a term sheet, Winspear and Administration are finalizing a funding agreement for the construction of the District Energy Shell Building for an amount not to exceed \$7,126,908, excluding GST. The funding agreement will also include provisions for access to the District Energy Shell Building through a lease agreement between Winspear and EPCOR, as described above.

Winspear’s contractor has started the process to tender and construct the shell Building. Construction on the building is expected to start in January and should be completed by the fourth quarter of 2021. The construction timelines for the building and the district energy infrastructure are aligned with the overall Winspear expansion completion, so that heat can be provided at the time of full completion currently scheduled for the fall of 2022. The City will continue to manage the funding agreement with Winspear during the District Energy Shell Building construction.

Legal Implications

Public utilities owned or operated by municipalities providing service within that municipality are generally regulated by their municipal councils, as they are exempt from Alberta Utilities Commission regulation pursuant to s. 78(2) of the Public Utilities Act, RSA 2000, c P-45. Public utilities that are not owned or operated by municipalities that supply water, heat, light or power are regulated by the Alberta Utilities Commission. Municipally controlled corporations are exempt from regulation by the Alberta Utilities Commission with respect to utilities that provide water or steam within a municipality pursuant to s. 75.4 of the *Municipal Government Act*. A corporation may finance the development of a public utility without having ownership over that utility; ownership depends on a variety of factors, with financial investment being only one such factor. Since the initial customers for the Downtown District Energy System are limited to the City and Winspear, and are further limited to only three buildings in total,

it would be appropriate for the service and rates for the service to be determined by the City through contract.

The generation, sale and distribution of electrical energy in Alberta is governed by the Electric Utilities Act (SA 2003, c E-5.1), the Hydro and Electric Energy Act (RSA 2000, c H-16), and their regulations. Although Alberta's energy regulatory scheme includes a general rule against municipal ownership of electrical generating units, the City's ownership of the electrical generating unit for this project may fit within an exemption that would allow for the City's ownership and self supply of electricity. The City will be required to make applications to the Alberta Utilities Commission and the Market Surveillance Administrator for approval to construct, own and operate the electrical generating unit.

Payment for capital property over a term longer than five years is considered a borrowing pursuant to the *Municipal Government Act* so the agreements will be subject to Council approval of a borrowing bylaw. City Council has already passed borrowing Bylaw 19365 for this purpose, however, an amendment is necessary to reflect the rate and financing terms based on EPCOR financing rather than financing through the Province.

Financial Implications

Integrated Infrastructure Services report CR_7754, presented to City Council on April 15, 2020, provided the technical and financial analysis for a scaled-down approach for the Downtown District Energy Initiative. Administration recommended a Central District Energy Plant at the Winspear, which includes combined heat and power, and boiler plant, initially connected to three buildings: Winspear, Century Place and Chancery Hall. The capital profile (20-83-9001, Downtown District Energy Initiative) was in the amount of \$27.9 million, of which \$11.5 million would be required from the unallocated corporate funding pool available for future emerging capital items (comprised of \$7.0 million for the funding gap and \$4.5 million held in abeyance for the Winspear boiler system), \$2.6 million would be reallocated from existing facility renewal capital funding, and \$13.8 million would be funded by self-liquidating debt repaid through utility customer rates.

City Council subsequently approved capital profile 20-83-9001 as part of the Spring 2020 Supplemental Capital Budget Adjustment. Under the proposed agreements, the funding sources for the District Energy System's construction remain the same except that EPCOR will finance the \$13.8 million through a combination of debt and equity rather than the City of Edmonton borrowing the \$13.8 million through the Province.

As discussed in April 15, 2020, Integrated Infrastructure Services report CR_7754, annual operating costs (uninflated) for the combined heat and power and boiler plant

to provide electricity and heating to the three buildings were initially projected at \$1.5 million, compared to \$2.0 million of electricity and heating costs (energy bills and maintenance costs) the three buildings would otherwise incur under the business as usual scenario. The \$0.5 million in annual operating cost savings (uninflated) would be available to support debt servicing costs, up to \$13.8 million of self-liquidating debt based on 30 year debt at 2.75 percent. Utility customer rates would be based on the three buildings incurring the same annual costs for heating and electricity as under the BAU scenario, generating \$2.0 million of revenue (inflated 3.4 percent annually for the average escalation in natural gas, electricity and operating costs) to offset the operating and debt servicing costs over a 30 year period.

Under the current proposal, the operating and financing costs for the district energy system are currently projected to be approximately \$2.4 million beginning in 2023 (with the O&M portion being inflated five percent in the first five years and then two percent thereafter). This is \$0.4 million higher than the projected revenue available from the three buildings based on BAU. The \$2.4 million of projected costs are also subject to a number of key assumptions including the amount of energy the Winspear Centre will require based on its expanded footprint once the renovations are completed, the annual payments made to Winspear to locate the energy plant adjacent to their building, the commodity price for natural gas and electricity, carbon taxes, interest rates, and the operating performance of the combined heat and power units.

As the district energy system continues to expand with additional buildings being connected in future years, economies of scale and other operating efficiencies will be realized. Under the agreement proposal, the City will benefit in part from these system wide efficiencies resulting in a reduction in the annual fees paid to EPCOR to provide thermal heating and electricity to the initial three buildings, recognizing the City's investment in excess system capacity.

Administration will develop a strategy, through a reallocation of funded operating programs, in advance of the 2023-2026 Operating Budget, to address any incremental operating funding shortfalls of the Downtown District Energy initiative, currently estimated at \$0.4 million (uninflated) beginning in 2023.

Public Engagement

Public engagement was not undertaken for this update report. Project updates have been provided and presented to the Energy Transition Climate Resilience Advisory Committee (ETCRAC). Administration has been in ongoing communications with Winspear about the integration of the Downtown District Energy Initiative into their completion project. As part the further regulatory approval of the combined heat and power operation EPCOR and Administration are planning public consultation activities in the surrounding community.

Corporate Outcomes and Performance Management

Corporate Outcome(s): Edmonton is an Environmentally Sustainable and Resilient City			
Outcome(s)	Measure(s)	Result(s)	Target(s)
Edmonton is an environmentally sustainable and resilient City	Community Greenhouse Gas Emissions (million tonnes of carbon dioxide equivalents)	19.4 (2017)	11.0 by 2035 (35% below 2005 levels by 2035)
Corporate Outcome(s): The City of Edmonton has a Resilient Financial Position			
Outcome(s)	Measure(s)	Result(s)	Target(s)
The City of Edmonton has a resilient financial position	City Asset Sustainability (actual expenditure on capital infrastructure divided by required expenditure)	0.94 (2017)	1.00 (2018)

Risk Assessment

Risk Element	Risk Description	Likelihood	Impact	Risk Score	Current Mitigations	Potential Future Mitigations
Regulatory	Delay in regulatory approval from the Alberta Utilities Commission.	3 Possible	2 Moderate	6 Low	Plans and timelines in place. EPCOR's experience with regulatory applications in Alberta.	Temporary heat can be supplied to Winspear.
Financial	Budget overruns throughout the design and construction process.	3 Possible	2 Moderate	6 Low	Guaranteed maximum price contracts in place, Proper project management processes in place, the contractor is familiar with the Winspear and District Energy project.	
Financial	Annual operating costs for the district energy system are higher than projected, resulting in an increase in the incremental operating funding shortfall.	3 Possible	2 Moderate	6 Low	As the district energy system continues to expand with additional buildings being connected in future years, economies of scale and other operating efficiencies will be realized.	

Project Management	Project delays as a result of a schedule change.	2 Unlikely	1 Minor	2 Low	Proper project management and schedule control processes in place.	
Legal	Final agreements with Winspear are not in place.	1 Rare	2 Moderate	2 Low	A long-standing relationship with the Winspear, agreed-upon term sheet.	

Attachments

1. Term Sheet - Summarised Version
2. Cost and Operating Matrix - Downtown District Energy Initiative

Others Reviewing this Report

- M. Persson, Chief Financial Officer and Deputy City Manager, Financial and Corporate Services
- S. McCabe, Deputy City Manager, Urban Form and Corporate Strategic Development
- C. Owen, Deputy City Manager, Communications and Engagement
- R. Smyth, Deputy City Manager, Citizen Services
- B. Andriachuk, City Solicitor