COUNCIL REPORT

DOWNTOWN DISTRICT ENERGY INITIATIVE

Growth Plan

Recommendation

That Utility Committee recommend to City Council:

1. That the Downtown District Energy 2025-2026 Utility Rate Filing, as outlined in Attachment 4 of the June 23, 2025, Integrated Infrastructure Services report IIS02765, be approved.
2. That the 2025-2026 Downtown District Energy Utility Operating Budget be approved as follows:
    a. 2025 Operating Budget with expenditures of $889,000 and revenues of $336,000.
    b. 2026 Operating Budget with expenditures of $1,787,000 and revenues of $1,031,000.
3. That the capital budget adjustments to capital profiles 20-83-9001 - Downtown District Energy Initiative and CM-83-0001 - District Energy Network Strategy and District Energy Nodes, as outlined in Attachment 5 of the June 23, 2025, Integrated Infrastructure Services report IIS02765, be approved.

Requested Action		Council decision	
ConnectEdmonton's Guiding Principle		**ConnectEdmonton Strategic Goals**	
CONNECTED This unifies our work to achieve our strategic goals.		**Climate Resilience**	
City Plan Values.	CREATE		
City Plan Big City Move(s)	Greener as we grow	**Relationship to Council's Strategic Priorities**	Climate adaptation and energy transition
Corporate Business Plan	Transforming the future		
Council Policy, Program	• C627 Climate Resilience Policy		

or Project Relationships	• Edmonton's Community Energy Transition Strategy • Climate Resilient Edmonton: Adaptation Strategy and Action Plan • District Energy Strategy
Related Council Discussions	• June 23, 2023, Integrated Infrastructure Services report IIS01386, Downtown District Energy Initiative • February 27, 2024, Integrated Infrastructure Services report IIS02148, Implementing Edmonton's District Energy Strategy • March 5, 2025 Integrated Infrastructure Services report IIS02821, Downtown Workspace Optimization

Executive Summary

- The Downtown District Energy Initiative (DDEI) is part of the City's District Energy Strategy. The strategy supports several goals outlined in The City Plan, City Council's climate resilience objectives, and is identified as a "Big Win Action" in Edmonton's Community Energy Transition Strategy.
- The long-term vision of the DDEI is to provide low-carbon heating and cooling services to public and private sector buildings and new developments in downtown Edmonton by 2050.
- Construction of Phase 1 of the DDEI, which includes Winspear (including its expansion), Century Place and Chancery Hall, is nearing completion and utility operations will soon commence. Further growth of the DDEI will require a balanced approach to ensure the utility remains financially sustainable and meets climate objectives.
- This report provides the necessary operating budget and the rate filing requirements to start the operation of Phase 1 of the district energy utility.
- To facilitate the next phase of DDEI growth and to fully establish an anchor load in Downtown Edmonton, Administration prepared a business case that evaluates options for the near-term expansion of the system into Phase 1A and to start the conceptual design for Phase 2.
- Administration recommends a growth approach that balances the financial health of a growing utility and future-proofing the utility to achieve the necessary GHG reductions in the coming years.
- Administration is recommending using existing funds earmarked for the District Energy Strategy work for the recommended expansion work.

REPORT

The Downtown District Energy Initiative (DDEI) supports various strategies and plans approved by City Council to reduce carbon emissions and create a more climate adapted and energy resilient city. The DDEI is one project identified in the City's District Energy Strategy, which seeks to create a city-wide district energy network. By 2050, the DDEI is envisioned to provide low-carbon heating and cooling thermal energy services to public and private sector buildings and new developments downtown, and will increase local energy resilience while maintaining a competitive rate structure.

A three-pronged approach is recommended to facilitate the continued expansion of the DDEI and to establish a fully developed anchor load in Edmonton's downtown. This growth is essential to achieve Council's vision of a fully decarbonized, large-scale district energy network, supporting

the City's net-zero emissions targets for City buildings by 2040 and for the entire community by 2050. This approach includes:

1. **City Leadership** - Full design and expansion of the DDEI to connect the next three City-owned anchor loads in Phase 1A (City Hall, Citadel Theatre and Stanley A. Milner Library). This fully establishes an anchor load in the downtown, consisting of six mostly City-owned and operated buildings and supports the reduction of corporate GHG emissions.
2. **Growth Planning** - Advance design work for Phase 2, which includes another energy centre and extension of the DDEI to privately owned buildings and two new prominent downtown developments — Station Lands and Village at ICE District.
3. **Awareness Building** - Implement a communications and outreach plan to increase awareness of the DDEI and engage in conversations with private building owners in the identified area. The goal of this work is to increase overall awareness of the overarching initiative and encourage future utility connections.

Utility operations for Phase 1 of the DDEI, which includes Winspear, Century Place and Chancery Hall, is expected to begin in Q3 2025. As such, the utility rates and operating budget for Phase 1 require approval from Utility Committee and City Council. Recommendation 1 requests approval of the 2025-2026 utility rate filing, including the proposed utility rates, and recommendation 2 requests approval of the utility operating budget for 2025 and 2026.

The report also recommends the expansion of the DDEI through design and construction of Phase 1A (City Hall, Citadel Theatre and Stanley A. Milner Library), as well as starting design work for Phase 2. The capital budget required for this expansion is requested through recommendation 3 in the report, and is allocated from the existing composite District Energy Network Strategy and District Energy Nodes capital profile, therefore no additional capital funding is required.

Downtown District Energy Initiative Phase 1 - Delivery Update, Operating Budget Request and Rate Filing

In July 2023, City Council approved a capital budget adjustment for a total of $35.9 million to accommodate the full design and delivery of Phase 1, as detailed in the June 23, 2023, Integrated Infrastructure Services report IIS01386, Downtown District Energy Initiative, primarily funded through tax-supported debt and pay-as-you-go. The City and EPCOR, through a design, build, finance, operate and maintain agreement, are delivering Phase 1 of the DDEI. Providing heating services, Phase 1 encompasses the construction of a central energy centre within a purpose-built building at Winspear, as well as establishing connections and delivering thermal energy to Winspear, including its expansion, Century Place and Chancery Hall. Construction started in 2024, with utility operations expected to begin in Q3 2025.

The first energy centre was designed to accommodate expansion to serve several additional customers, including buildings located in Phase 1A (Citadel Theatre, Stanley A. Milner Library and City Hall) and to integrate low-carbon generating capacity.

Attachment 1 includes a budget request to cover operating costs, including utility costs, costs for EPCOR to operate and maintain the system, and costs of City staff to provide proper project

oversight. Attachment 1 also includes the proposed rate revenue in line with the regulated utility rates presented in Schedule B of Bylaw 20914 - Downtown District Energy Utility (June 23, 2025, Integrated Infrastructure Services report IIS02583). The approval of recommendations 1 and 2 of this report are interrelated with the approval of Bylaw 20914 - Downtown District Energy Utility Bylaw (report IIS02583).Utility rate revenue, calculated based on principles established in the Downtown District Energy Utility Fiscal Policy C631 as presented in the June 23, 2025 Financial and Corporate Services report FCS02853, Downtown District Energy Fiscal Policy, is based on a "Business as Usual" (BAU) principle. BAU means utility customers will pay an equivalent amount in the utility rates and fees, on average, to the rates and fees that utility customers would pay for traditional service providers, plus the utility customers' estimated avoided costs on thermal energy utility bills, annual boiler equipment maintenance and capital renewal costs.

Attachment 4 includes the minimum filing requirements for the 2025-2026 Rate Filing to support the proposed operating budget and regulated utility rates. The bylaw also ensures that Century Hall and Chancery Place remain connected to the Utility as anchor load buildings for the long term, given that Administration will be listing the buildings for sale, in alignment with the motions passed by City Council following the presentation of the April 8, 2025 Integrated Infrastructure Services report IIS02821, Downtown Workspace Optimization.

Downtown District Energy Initiative - Long-Term Growth

Emissions reduction goals and financial sustainability of the Utility need to be balanced as the DDEI grows beyond Phase 1. Investing in low-carbon energy generation comes with a cost premium, due to higher required capital and operating costs, which can impact the long-term financial health of the Utility. This will be especially relevant in the early stages of any major capital expansion, as a critical mass of customers will be required to be able to properly support the required financial investments.

From a regulatory perspective, the expansion into Phase 1A (City Hall, Citadel Theatre and Stanley A. Milner Library) includes mostly City-owned and operated buildings, and so the decision to connect these buildings to the Downtown District Energy utility is within Council's discretion and supports the City in achieving its corporate GHG emissions targets. However, for privately owned buildings and new developments beyond Phase 1A (see Attachment 2 - Downtown District Energy Initiative Map) that are not owned by the City, there is no current policy in place that incentivizes connections to the DDEI, nor is there a bylaw mandating connection. This applies to ongoing developments like the Village at ICE District and Station Lands, where feasibility studies have shown strong and logical opportunities to provide GHG emissions reductions through a centralized district energy system relative to individual building investments. If these developments progress, there is currently no capital funding available to connect them to the DDEI. This could mean that there is a risk the developers may be less inclined to connect to the DDEI if they have already planned for their standard mechanical systems through the normal course of design development. Administration is in contact with both developers with the goal to align these activities and integrate the connection to the DDEI.

To build a sustainable utility, it will be crucial to balance growth in energy loads and connections with the ability to provide GHG-reducing technologies that benefit all customers at competitive

rates and fees. The overall goal of the Utility is to achieve GHG emissions reductions in line with the City's net-zero goals for its operations (including its buildings) and for the community as a whole in a financially sustainable manner. As the DDEI grows, key decisions will need to be made to achieve this goal. Administration anticipates that key parameters, such as capital costs, fuel costs, building regulations and/or incentives, may change significantly over the coming decades, and could have an impact on how the utility operates and how fast it grows.

Administration has modelled four long-term scenarios for the full potential DDEI, which would expand the system through the end of Phase 4, at which point the majority of buildings served by DDEI will be privately owned (see Attachment 2). These scenarios were developed at a high level to demonstrate the overall trend, impact and range of opportunities for the DDEI and highlight the resulting financial impacts.

Administration will carefully evaluate the data and trends on an ongoing basis, as key decisions will be necessary at each step of utility growth to respond to the parameters described above. Key decisions on capital investment will not be required until closer to implementation of future expansion phases as conceptual design studies will need to be prepared as well as analysis on the viability of technologies, customer demand for utility connections, and related cost impacts are fully evaluated. Any future potential changes will impact the four long-term high-level growth scenarios for the DDEI presented below (Attachment 3).

The four full build out scenarios analyzed range from using natural gas that offers a 10 per cent GHG reduction through efficiency measures, to scenarios that increase the integration of renewable and low carbon energy sources that offer between 35 to 96 per cent GHG reductions. Financial modelling analysis shows that scenarios that achieve higher GHG emission reductions result in increased capital costs, because of the additional investment required in carbon-reducing technology as well as higher operating costs. For example, the "No Decarbonization" scenario, leading to a 10 per cent GHG reduction, results in a positive return on investment (positive NPV of $106 million), meaning that it is forecasted to be financially sustainable in the long-term without the need for additional financial support in the future. In contrast, the "Max Decarbonization" scenario, leading to a 96 per cent reduction in GHG emissions, produces a negative return on investment (negative NPV of $172 million), which represents a funding gap for the Utility and demonstrates that the utility would not be financially sustainable without subsidization. Based on current information, pursuing this scenario would require alternative funding (e.g., tax levy support, CRL, grants, increasing utility rates above BAU, etc.) to ensure long term financial sustainability.

Business Case - Utility Expansion Recommendation - Phase 1A Design and Construction and Phase 2 Conceptual Design

Attachment 3 provides the detailed business case, which focuses on three options to expand the DDEI today, to build the Phase 1A infrastructure and connections (City Hall, Citadel Theatre and Stanley A. Milner Library) and to start design work for Phase 2. Each of the options below aligns with the full buildout scenarios mentioned above to varying degrees, and all are dependent on future decisions regarding utility growth from Phase 2 onwards.

- Option 1 - Future Proof (Recommended) - Advance Phase 1A with natural gas infrastructure, future proof the system for renewable electricity and advance conceptual design of Phase 2.
- Option 2 - Business-as-usual - Advance Phase 1A with natural gas and advance conceptual design of Phase 2.
- Option 3 - Deep Carbon Reduction - Advance Phase 1A design with renewable electricity and advance conceptual design of Phase 2.

Based on the analysis provided in the business case (Attachment 3), Administration recommends expanding the DDEI Phase 1A infrastructure as outlined in Option 1. This option provides the best balance between the financial health of a growing utility and future-proofing the utility to achieve the necessary GHG reductions in the coming years. This approach supports the City of Edmonton's corporate target of net zero emissions by 2040, as the buildings in Phase 1A are currently mostly City-owned and operated. While the initial focus will be on natural gas infrastructure in the initial operation of the utility, the simultaneous installation of electrical boiler capacity provides operational flexibility and will allow for timely fuel switching in the future.

As shown in Table 1 below, the recommended option (Option 1), is forecasted to provide a positive return on investment with an NPV of $4 million.

Table 1: Outcome Summary - Phase 1 and 1A Only (in $ millions)

Options	Description	Capital Investment	Annual Operating Costs	Annual Rate Revenue	NPV	GHG Reduction		Cost of GHG Reduced
		Total	Average	Average	30 Year	[%]	[tCO2] 30 Year	[$/tCO2]
1	Install electric boiler but only operate natural gas	51.0	1.9	2.4	4.0	5	9,000	-444
2	Install and operate only natural gas - No Decarbonization	49.0	1.9	2.4	4.0	5	9,000	-444
3	Install and Operate electric boiler - Max Decarbonization	51.0	5.3	2.4	-25	84	126,000	198

Option 2 also provides a positive return on investment but does delay the flexibility for the Utility to transition to electric boilers in the future to reduce GHG emissions on a more timely basis. Option 3, in contrast, will achieve the largest GHG reductions, but will not provide a positive return due to the higher average annual operating cost of utilizing electricity rather than natural gas.

The cost of GHG reduced (last column) is a measure of the cost efficiency of reducing GHG emissions for each scenario. It is calculated by dividing the net-present value for each scenario by the related amount of GHG reduced. A positive value, as in Option 3 with $198 per tonne of carbon dioxide reduced, is seen as the necessary climate investment, per tonne, that would be required to achieve the identified GHG reduction of 126,000 tonnes of carbon dioxide over 30 years. A negative value (as in Option 2 and 3) is the positive return associated with each tonne reduced.

To further explore the financial sustainability of the potential options, Table 2 below highlights the cumulative cash flows at the end of each Phase.

Table 2: Cumulative Cash Flows by Phase - Phase 1 and 1A Only (in $ millions)

Options	Description	2025-2027	2028-2030	2031-2035	2036-2040	2041-2045	2046-2054
1	Install electric boiler but only operate natural gas	1.1	2.6	4.4	6.5	8.8	13.9
2	Install and operate only natural gas - No Decarbonization	1.1	2.6	4.4	6.5	8.8	13.9
3	Install and Operate electric boiler - Max Decarbonization	1.1	-4.5	-18.9	-34.8	-52.3	-88.1

Based on the table above, the recommended option (Option 1), is forecasted to provide positive cumulative cash flows by 2027. It is also forecasted that cumulative cash flow balances will continue to increase, over the 30-year financial model period, resulting in an ending balance of $13.9 million by 2054, which will be available to help fund future capital renewal costs. Option 1 is expected to be financially sustainable in both the short and long term due to the fact that the initial capital investment is financed through tax-supported debt and pay-as-you-go and is not required to be funded by utility rate payers.

Option 2 has similar financial results as both utilize natural gas as the main energy source. In contrast, Option 3 is expected to generate negative cashflows as early as the Phase 1A timeframe with increasing negative balances into the future due to the higher costs of utilizing electricity compared to natural gas. This scenario would require subsidization through other non-utility revenue funding sources in order for the utility to be financially sustainable.

Utility Expansion - Next Steps

If City Council supports the recommendation to expand the utility as outlined in Option 1, Administration will begin design work for Phase 1A and engage EPCOR under the existing design, build, finance, operate and maintain agreement. Administration will also procure an owner's engineer to provide project oversight and accountability services.

In parallel with conceptual design work for Phase 2, Administration will implement a Communications and Outreach Plan to generate awareness and buy-in for the DDEI. Together, these efforts will prime future utility growth to the identified existing privately owned buildings and two new developments (Village at ICE District and Station Lands).

Administration recommends using the approved capital budget currently part of capital profile CM-83-0001 - District Energy Network Strategy and District Energy Nodes to fund the utility expansion recommended in the business case. That budget was set up and will continue to be utilized to fund design and development of District Energy Nodes in accordance with the District Energy Strategy. One of the key focus areas for district energy implementation in Edmonton is the Downtown as this is where significant GHG emissions from building stock is occurring. Hence the recommendation to transfer the funds to establish the anchor load for the Downtown District Energy Initiative. Administration is confident that the work on other District Energy opportunity areas identified can progress and that the impact in lost funds can be offset by alternative forms

of project development and delivery. Administration has brought forward a capital budget adjustment (recommendation 3) to transfer $18.3 million of existing funding from CM-83-0001 to 20-83-9001 (Downtown District Energy Initiative) which will result in no new capital funding approvals being required (Attachment 5).

Administration will return to Council with updated business plans, budgets, rates and bylaw amendments for Phase 1A and Phase 2, as required. As noted above, each future decision point will need to weigh the financial and environmental sustainability of the DDEI, as key parameters such as capital requirements, fuel costs, building regulations and incentives, may change significantly over the coming decades. A balanced approach is key to implementing this high-impact, long-term climate initiative.

Legal Implications

Public utilities owned or operated by municipalities providing service within those municipalities 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*. Municipal utility customers have a right to appeal to the Alberta Utilities Commission pursuant to s. 43 of the *Municipal Government Act*, RSA 2000, c M-26 if a customer's service charge, rate or toll does not conform to the municipality's rate structure, has been improperly imposed, or is discriminatory. This appeal is not with respect to the utility rate structure approved by Council.

Community Insight

Project updates have been provided to the Energy Transition Climate Resilience Advisory Committee (ETCRC). Administration has also been in ongoing communications with Winspear about the integration of the DDEI into their completion project, which aligns the development of both projects and ensures thermal energy can be provided when it is required. As part of the future project development, EPCOR and Administration are planning public consultation activities as required for the surrounding community to achieve awareness of the project and the overall initiative. The City also commissioned in 2024 the Climate Change and Energy Perceptions Report to understand among other things Edmontonians' current behaviours and perceptions regarding climate and energy transition programs.

GBA+

The Downtown District Energy Initiative supports City Council's 10-year Climate Resilience objectives, The City Plan, and was identified as a "big win" in Edmonton's Community Energy Transition Strategy. The initiative is not directly public facing, and while there would be no changes in economic impact as a result of the project, the reduction of GHG emissions and the gain in energy resilience will be net positive impacts on a community level. In addition the direct liability towards Edmontonians is limited. The project does not foresee any medium or long-term impact on residents or visitors in the downtown area as a result of construction activities.

Environment and Climate Review

While the City of Edmonton has made progress on its climate actions, the community's emissions still exceed target emissions, with commercial and institutional buildings representing 15 per cent of community GHG emissions in 2023.[1] The DDEI provides an opportunity to further reduce GHG emissions and aligns with Edmonton's City Plan, Community Energy Transition Strategy and C627 Climate Resilience Policy.

Environmental benefits aligned with economic benefits

Similar to the economic considerations above, the environmental benefit of the DDEI increases as more buildings connect and low-carbon energy generation is installed. The DDEI may also support the energy-transition and sustainability goals of individual building owners and tenants.

Environmental benefits improve as project progresses beyond Phase 1

Although natural gas, rather than renewable energy, is used for Phase 1 of the DDEI, the design of the system will improve the overall energy efficiency of these buildings in comparison to individual building heating systems. This is expected to lower GHG emissions, with greater reductions expected over time as additional buildings are connected. The estimated reductions are found in the DDEI Long-Term Growth section above.

Attachments

1. Operating Budget Request for Downtown District Energy Utility for 2025-2026
2. Map of Building Connections and Thermal Energy Demand
3. Business Case - Phase 1A and 2 Development
4. 2025-2026 Rate Filing and with Minimum Filing Requirements
5. Capital Budget Adjustments to Capital Profiles 20-83-9001 and CM-83-0001
6. Utility Advisor Review - Downtown District Energy Utility - 2025-2026 Rate Filing

[1] City of Edmonton, Climate Strategies: Annual Implementation Update, November 2024.