

Environment and Climate Review

This attachment shows alignment between the direction of The City Plan and Council Policy 627 Climate Resilience in support of the City’s implementation of its Infrastructure Strategy. The table below shows examples of alignment in four areas:

Energy Transition	
<p>Policy C627 supports reduction in greenhouse gas (GHG) emissions from the City’s own buildings to become emission neutral.¹</p>	<p>The City Plan provides directives for the City to mitigate climate change through various actions. Mitigation actions include GHG emission reductions. Almost a third of Edmonton’s community GHG emissions and nearly half of the City’s corporate emissions come from buildings.² Policy C627 and its supporting procedures incorporate measures through design and construction that aim to reduce GHG emission and energy use associated with the City’s building stock. These measures progress the corporate target of becoming emission-neutral by the year 2040. A request for an exception to the Policy can be made if the costs outweighs the expected benefits, as demonstrated by a Lifecycle Cost-Benefit Analysis (see Life Cycle Costs of Infrastructure below).</p>
Climate Change Readiness	
<p>Policy C627 supports climate adaptations of buildings to reduce their vulnerability to the changing climate.</p>	<p>Climate modeling for Edmonton indicates climate impacts due to continued rising temperatures, changing precipitation patterns, and an increasing frequency and severity of storm events, which will place greater pressure on City assets and infrastructure. Policy C627 requires that City buildings consider these future climate conditions through actions such as completion of climate risk assessments to enhance climate</p>

¹The following explanation demonstrates two definitions used by the City. The first is on an emission neutral building as per the policy C627, which defines an emission neutral building as “a building that is highly energy efficient and: a) uses only Renewable Energy for its operations on an annualized average basis (this may include either on or offsite generated Renewable Energy), OR b) produces and supplies onsite Renewable Energy in an amount sufficient to offset the annual greenhouse gas emissions associated with the energy consumed for its operations.” The next one is from the Greenhouse Gas Management Plan for City Operations, which defines a net zero energy building as “a building/site where the total amount of energy used on an annual basis is roughly equal to the amount of renewable energy created on the site.” To note, net zero building design requirements, which were used for Edmonton Windermere Fire Station 31, are more stringent than the emission neutral requirement included in policy C627.

²City of Edmonton 2022 Community Greenhouse Gas (GHG) Emissions Inventory Report, July 2023.

	resilience. Climate-resilient infrastructure/assets can help minimize service disruptions and associated hardships due to climate induced failures and improve safety.
Lifecycle Cost of Infrastructure	
Considerations of full lifecycle costs and benefits are incorporated in policy C627.	The City Plan has outlined the need to consider full lifecycle costs of infrastructure development. Policy C627 can increase initial capital costs, however, the policy derived differential cost should decrease with renewable electricity purchases and technology improvements by the City. The procedures under C627 do provide exceptions for considerations of cost-effective operations. Energy code updates, effective May 1, 2024, together with provincial future code updates, could further reduce capital costs derived by the policy application as the policy and code requirements align. Typically, operational costs of infrastructure are significantly influenced by climate change over time since infrastructure tends to have a long service life. ³ As such, incorporating consideration of future climate conditions into capital projects now, can help reduce future capital and operating costs while avoiding locking in climate vulnerability for generations to come. ^{4,5}
Regional Innovation	
C627 supports innovation and excellence in capital projects for City's assets and infrastructure.	As Edmonton implements the City Plan by leading in innovative capital projects for infrastructure and assets, this in turn helps to grow the energy efficiency industry within the region (i.e manufacturing, consulting, and technological advancements) while strengthening the City's example as a low-carbon City. Supporting innovation in climate-resilient infrastructure can also increase access to capital grants from other orders of government. ⁵

³ Federation of Canadian Municipalities (FCM) and Insurance Bureau of Canada (IBC).(2020). Investing In Canada's Future: The Cost of Climate Adaptation at the Local Level. Final Report.

⁴ FCM. (No year). Considering Climate Change in Risk Management. Accessed from: <https://fcm.ca/sites/default/files/documents/programs/mamp/considering-climate-change-in-risk-management.pdf>

⁵ Government of Canada. (September, 2024). Build Climate Smart. Accessed from: <https://housing-infrastructure.canada.ca/climate-resilience-climatique/codes-standards-normes-guidances-eng.html#resources>

Linkages to the City Plan:

- 2.3.2.1 Align the capital and operating budget with growth priorities and city-wide budget planning.
- 6.4.1.1 Encourage innovation to reduce non-residential process energy and carbon footprint.
- 6.4.2.1 Align, implement and monitor climate change mitigation and adaptation planning to meet local, national, and international commitments.