

Climate

THE IPCC REPORT released in April 2022 offered a dire warning on climate change. If we are to avoid the worst effects of climate change, global emissions need to peak by 2025 at the latest, and need to be reduced by 43 per cent by 2030.¹ Cities can play a significant role in meeting this target through “lower energy consumption (such as by creating compact, walkable cities), electrification of transportation in combination with low-emissions energy sources, and enhanced carbon uptake and storage using nature.”²

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The 2022 AMB includes spending which touches upon each of these elements. The City Planning and Active Transportation chapters include spending that would rapidly transform the urban environment to make active transportation a viable option for a large share of trips currently taken by car. Spending in our Public Transportation chapter would create a more frequent and reliable transit service while electrifying half of the current Winnipeg Transit bus fleet, dramatically reducing emissions. Personal vehicles account for 32.1 per cent of emissions in Winnipeg while Transit accounts for just 0.8 per cent.³ Shifting more people from driving to walking, cycling, and transit would go a long way in reducing emissions.

The City of Winnipeg released its own *Climate Action Plan* in 2019, however the City has not allocated sufficient resources to meet the goals set out in their climate strategy, and the strategy does not go far enough to begin reducing overall emissions by 2025. This is particularly true of



the City’s funding for green buildings and sustainability planning, which receive virtually no funding. This is a significant gap in the City’s climate strategy. The remainder of this chapter will respond to these shortcomings by outlining policy and spending which would reduce energy use in existing buildings and begin transitioning new building and home construction towards net zero emissions.

Sustainable Buildings are Key to Reducing Emissions

In 2019, natural gas used for space and water heating in Winnipeg accounted for 34.6 per cent of the city’s total greenhouse gas (GHG) emissions. This makes buildings our second-largest source of GHG emissions, after transportation.⁴ Building or retrofitting a home to a zero-emission standard is a lengthier and more complex process than buying an electric car from a dealership, but the technology to heat our buildings affordably and without emissions exists today.

The City’s Climate Action Plan sets GHG emission goals for 2030 and 2050. By 2030, the goal for buildings is an *increase* of 8 per cent relative to total city emissions in 2011. Goals for 2050 are not broken down by sector but target an 80 per cent overall reduction in GHGs compared to 2011. This 80

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per cent reduction in GHG emissions will require significant action to reduce natural gas use by buildings.

Building to a high level of energy efficiency does increase initial construction costs, but not by as much as is commonly assumed. Considering the savings realized over the lifespan of the building through lower energy and maintenance costs, the modest increase in the required budget for a new project is a no-brainer. Modelling by SRP Canada suggests a zero-emission home in Manitoba adds as little as 8 per cent to the initial cost of construction versus a home built to code, and the savings realized over the life of the building more than pay for the entire cost of construction.⁵ The Forks completed the installation of a ground source (geothermal) heat pump system for heating and cooling The Forks Market in 2011. This system eliminated the need for natural gas and paid for itself in ten years.⁶

Investing in energy efficient, zero-emission buildings is not only necessary to meet our GHG reduction goals but will also play an important role in keeping the City’s balance sheet healthy.

The City’s Climate Action Plan identifies many crucial actions required to decarbonize our buildings, but requests for funding are frequently thwarted by council. A request in 2020 by the City’s Office of Sustainability for funding to undertake a cost-benefit analysis of implementing the Climate Action Plan was denied; as a result, work is years behind schedule. A request to fund the Climate Action Reserve Fund was also denied.⁷

TABLE 1 Office of Sustainability Staffing Levels in Selected Cities

	Staff	Population	Staff p/100k
Vancouver	34	631,486	5.38
Edmonton	37	972,223	3.80
Thunder Bay	4	108,843	3.68
Toronto	66	2,731,571	2.42
Cleveland	8	372,600	2.15
Minneapolis	4	429,954	0.93
Winnipeg	4	705,244	0.57

The Office of Sustainability is critically understaffed compared to other cities, as shown in *Table 1*. This has created bottlenecks to climate action in every area of concern.

New Expenditure:

- Hire three additional staff for the Office of Sustainability. \$245,000 per year.
- Fund the Climate Action Reserve Fund: \$500,000

Green Building Policy

The City’s Green Building Policy was last amended in 2011. This policy requires new City-owned buildings and major additions to existing buildings to be certified to a minimum LEED Silver standard (or similar level of certification) and be certified by the Manitoba Hydro Power Smart New Buildings Program. The Power Smart program no longer exists, although similar programming now exists at Efficiency Manitoba. This policy needs an update.

LEED buildings tend on average to be more energy efficient, but even the higher levels of certification do not guarantee a sufficient level of energy efficiency or GHG emissions reduction to meet our overall reduction goal. Some analysis suggests as many as 28–35 per cent of LEED buildings use more energy than their conventional counterparts.⁸ This highlights the importance of setting specific performance targets and implementing ongoing energy management programs to ensure that buildings function as designed.

In Manitoba, we are lucky that our electricity grid is nearly 100 per cent renewable. This fact offers us a simple pathway forward to reducing emissions: mandate that new city buildings and major additions use only renewable energy sources for heating and cooling. Energy efficiency measures, such as installing high-insulation walls and windows and ensuring a tight building envelope are still required to keep energy costs low. An energy audit of all city buildings is supposed to be completed by 2022 under the City’s Climate Action Plan. This information would be used to prioritize the installation of energy efficiency upgrades but as of their most recent report, the Office of Sustainability was still trying to secure funding to hire an energy auditor to do this work.⁹

A simple pathway forward to reducing emissions: mandate that new city buildings and major additions use only renewable energy sources for heating and cooling.

Recommendation:

Amend the City's Green Building Policy to require new City-owned buildings and major additions to existing buildings be zero-emissions.

Municipal Building and Energy Standards

Manitoba's building codes are startlingly out of date. Manitoba and New Brunswick are the only provinces that did not harmonize our provincial building code with the 2015 National Model Building Code updates. As a result we are still using the 2011 code.¹⁰ The City of Winnipeg, like most Canadian municipalities, does not presently have the authority to develop its own building code, but there are non-code approaches it can implement to encourage private sector construction to be more sustainable.

The Toronto Green Standard was first introduced in 2006 and offers rebates on development fees that increase depending on the level of energy efficiency the building achieves. A similar scheme that increases basic development fees, but offers refunds for meeting efficiency targets, could ensure that new construction does its share to achieving our emissions reduction goals. A program like this may marginally increase the cost of new homes, but delaying this work just kicks that cost down the road to the future owners of those buildings.

The 300-acre Waverley West subdivision was originally intended to have a district geothermal heating and cooling system. This plan was abandoned in 2008 after Manitoba Hydro determined it would be "cost-prohibitive".¹¹ To meet emissions goals, these homes will have to be retrofitted in the future, likely at an even greater cost. The opportunity to achieve economies of scale has been lost, it is less expensive to implement zero-emissions technologies at the construction stage, and the gas infrastructure installed by Hydro in this neighborhood will be underutilized or even obsolete long before the end of its useful life. We need to get every new building right the first time.

Recommendation:

Develop a green buildings standard that creates incentives for private developers to make new buildings highly energy efficient.

Retrofitting

Most of the buildings Winnipeg will have in 2050 already exist. To meet emissions reduction targets, we must undertake a large retrofitting campaign of our existing building stock. Estimates for Winnipeg have not been developed but for comparison, the City of Edmonton has estimated that it needs to retrofit over 350,000 residential buildings and 11 million square feet of commercial space to meet its emissions reduction goals.¹² Since individual building owners will be responsible for initiating their own retrofitting projects, financial incentives will be essential to ensuring this happens.

Current subsidies and loan programs are delivered by a patchwork of different agencies and levels of government. The federal government rolled out its Greener Homes Grant last year, which will subsidize eligible retrofits by up to \$5,600.¹³ Efficiency Manitoba provides subsidies for a variety of energy efficiency improvements and has a program that will pay up to 100 per cent of eligible costs for low-income homeowners or tenants of low-income housing.¹⁴

Manitoba Hydro currently offers loans for home energy efficiency upgrades, but at 4.8 per cent their interest rate is relatively high.¹⁵ Compare this to Saskatoon's HELP (Home Energy Loan Program), which provides loans of up to \$60,000 at an interest rate of between 1.68 per cent and 2.72 per cent depending on the length of the repayment period.¹⁶ Unlike Hydro's loan program, a loan through HELP is attached to the property, not to the owner. This is very important, as it means a homeowner can sell their home without having to settle the loan, which could have a term length of up to 20 years. Instead, the new owner assumes both the benefits of the energy efficiency upgrades and the remaining loan obligations. Given the low interest rates offered by Saskatoon, we can expect that the energy savings from these upgrades will more than pay for the costs of servicing the loan. Programs like this are referred to as PACE (Property Assessed Clean Energy). Some municipalities are going even further. Ottawa's Better Homes program offers zero-interest loans of up to \$125,000 for energy efficiency upgrades, also delivered as a PACE program.¹⁷

New Expenditure:

Commission a report to determine what changes within the City's Assessment and Taxation department are required to enable PACE. Draft the legislation that is required to enable this program, and advocate for the province to adopt it: \$200,000

To meet emissions reduction targets, we must undertake a large retrofitting campaign of our existing building stock.

To facilitate the sale of homes that may have a loan outstanding due to energy efficiency upgrades, information about a building’s energy performance needs to be available so potential buyers can feel secure that the loan is worth paying. The PACE programs referenced above require post-retrofit energy audits so this information will be available, it just needs to be accessible and understandable to the public.

A successful retrofit strategy will involve the City implementing its own PACE program and may require the City to “top-up” the existing financial incentives offered by other levels of government. Once concrete targets for the number of retrofits are established, the City should consider what its contribution to the retrofitting effort must be.

Recommendation:

Expand the Sustainability Office’s Building Energy Disclosure Project to include residential buildings, and work with Winnipeg Regional Real Estate Board to communicate information about a residence’s energy efficiency to potential buyers.

Recommendation:

Determine the sector specific GHG emissions reduction goal for buildings for 2050. Use this information to develop a target for the number of required retrofits.

New Expenditure:

Commission a study to determine what financial incentives, marketing, education, and program support the City of Winnipeg must offer to achieve the targeted number of retrofits, once determined: \$200,000.

Retrofit City Arenas

Indoor arenas present a significant opportunity for the City to lead on energy efficiency retrofits and reduce natural gas consumption. These buildings give off large amounts of “waste” heat that can instead be captured and redistributed to nearby buildings through a district geothermal system. Providing both heating and cooling energy in this manner could become a revenue stream for the City. For example, one geothermal design proposal found that the waste heat from the two indoor rinks at Dakota Community Centre in St. Vital could cover the heating and cooling needs of that entire recreation complex plus the adjacent City-owned library, a high school, personal care home, and over 100 nearby residential homes.¹⁸ The design and installation

costs for these kinds of projects are site-specific, but typically have a simple payback period of less than ten years and quite often less than five years. The City of Winnipeg could use some or all of the \$8 million allocated to arena projects in this year's budget, on top of the \$4.5 million in additional funding proposed, to reduce its GHG emissions, save costs and earn new revenue.

New Expenditure:

\$4.5 million – Funding for the installation of district heating and cooling systems at City of Winnipeg Arenas

Endnotes

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- 2** *ibid*
- 3** City of Winnipeg. (2019). *Winnipeg's Climate Action Plan Summary* (p. 5).
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- 5** Cole, W. (2018). *Manitoba Case Study: Minimum Code Compliant Home vs. High Performance Home*. SRP Canada.
- 6** The Forks North Portage Corporation. (2020). *A Virtual Year in Review: The Forks Annual Information Meeting 2019/2020*. Retrieved February 8, 2022, from https://www.youtube.com/watch?v=bBgrwz7_kYM. Timestamp: 22:10 – 23:15
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- 11** CBC/Radio Canada. (2008, March 13). *Geothermal dealt 'Black Eye' by Waverley West Decision*. Retrieved February 7, 2022, from <https://www.cbc.ca/news/canada/manitoba/geothermal-dealt-black-eye-by-waverley-west-decision-1.735273>
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- 14** <https://efficiency.ca/my-home/energy-efficiency-assistance-program/>
- 15** https://www.hydro.mb.ca/your_home/residential_loan/
- 16** <https://www.saskatoon.ca/environmental-initiatives/energy/home-energy-loan-program-help>
- 17** <https://betterhomesottawa.ca/rebate-and-incentive-programs/better-homes-loan-program/>
- 18** Proposal developed by Ed Lohrenz, GEOptimize Inc.