

## **Materiality Assessment**

Eight SDGs for Canada Government and Six Cities

Group 4

Fuqi (Oren) Li, Nibin Koshy and Qiuyan Xu

McMaster University

SEP702 Systems Engineering and Public Policy

Dr. Greg Zilberbrant

March 24, 2024

## Contents

1	Problem Set Scope and Methodology .....	3
2	Materiality Assessment Map .....	3
3	Explanation of the Rationale of Government of Canada Ranking .....	4
3.1	SDG1 (Importance 9) .....	4
3.2	SDG13 (Importance 9) .....	4
3.3	SDG4 (Importance 8) .....	5
3.4	SDG17 (Importance 8) .....	5
3.5	SDG7 (Importance 7) .....	6
3.6	SDG9 (Importance 6) .....	6
3.7	SDG11 (Importance 6) .....	7
3.8	SDG12 (Importance 6) .....	7
4	Explanation of the Rationale of Municipal Rankings .....	8
4.1	Toronto (ON) .....	8
4.2	Montreal (QC) .....	8
4.3	Vancouver (BC) .....	9
4.4	Edmonton (AB) .....	9
4.5	Winnipeg (MB) .....	10
4.6	Halifax (NS) .....	11

## Materiality Assessment

### Eight SDGs for Canada Government and Six Cities

#### 1 Problem Set Scope and Methodology

The Government of Canada would like to understand where there is alignment between its actions on the Sustainable Development Goals (SDGs) and those of highest concern to Canadian municipalities. Assess the alignment of the Government of Canada's Sustainable Development Goals (SDGs) priorities against the priorities of various Canadian municipalities.

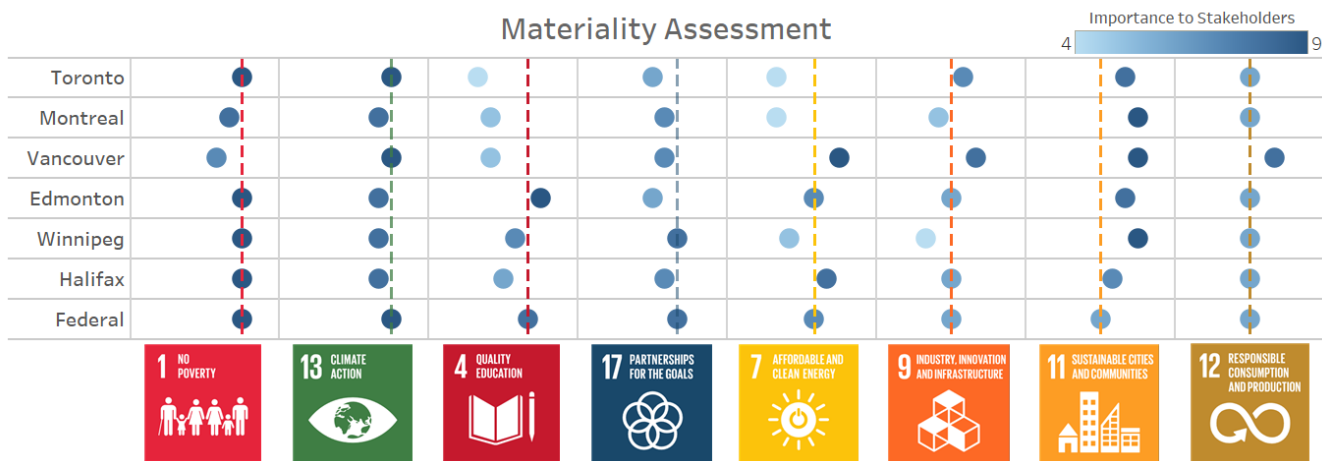
**Six Cities:** Toronto (ON), Montreal (QC), Vancouver (BC), Edmonton (AB), Winnipeg (MB), Halifax (NS).

**Eight SDGs:**



**Methodology:** the study utilizes Materiality Assessment to identify the alignment on eight SDGs between Canada Government and its six cities above. To visualize the outcome, heatmap has been used.

#### 2 Materiality Assessment Map



The Materiality Assessment Map reveals distinct patterns of alignment between the Federal Government and Cities concerning the SDGs. Notably, SDG1 and SDG 13 emerge as high-priority goals at both federal and municipal levels. Similarly, SDG12 garners comparable medium importance across the two levels. However, disparities surface in the prioritization of other SDGs. Cities uniformly accord high importance to SDG11, recognizing its pivotal role in placing cities at the forefront of sustainable development. Furthermore, the priorities assigned to the same SDGs vary among cities based on their unique circumstances. For instance, metropolitan areas, which often boast advanced educational resources, may deprioritize SDG4, focusing instead on other pressing goals.

### 3 Explanation of the Rationale of Government of Canada Ranking

#### 3.1 SDG1 (Importance 9)



The priority for by Canada for SDG 1 is visible from the large amount of \$3.5 billion being diverted towards it, making it the highest recipient amongst all SDG's. This has resulted in the poverty rate nearly halving from the 2015 base level of [14.5% to 7.4%](#). As the effects of the pandemic and federal relief measures to support individuals during that time are drying up, Canada needs to double down on its effort to keep poverty rates from rising back to pre-pandemic levels again. Even though Canada looks well poised to achieving their target of 50% decrease in poverty rates between 2015 and 2030, the nation faces challenges including high inflation rates and affordable housing for all. Poverty also continues to be experienced differently among Canadians with people with disabilities, recent immigrants, Indigenous people, and people from single member households at higher risks of suffering from poverty. The government has also formed a [National Advisory Council on Poverty in 2019](#) to independently advise the parliament on poverty reduction. Though the federal government has taken several poverty reduction initiatives like [Canada Child Benefit](#), [Canada Workers benefit](#), [Canada Learning Bond](#), [National Housing strategy](#) and [Poverty Reduction Act](#), Canada understands the work is far from over and has renewed its efforts by strengthening poverty measurement, identifying gaps and gathering more data to ensure that it continues unencumbered towards meeting the 2030 target. The Canadian Indicator Framework uses 2 indicators that tracks the official poverty rate and prevalence of asset resilience to assess Canada's progress towards this SDG.

#### 3.2 SDG13 (Importance 9)



Canada prioritizes SDG 13 because climate change poses an urgent global threat. Through initiatives like the [Pan-Canadian Framework on Clean Growth and Climate Change](#) and the [Net-Zero Emissions Accountability Act](#), Canada aims to reduce greenhouse gas emissions and mitigate climate impacts ambitiously ([VNR 2023](#)). Additionally, investments in climate resilience, such as the [Disaster Mitigation and Adaptation Fund](#), demonstrate Canada's recognition of the need to prepare for climate-related disasters. Enacting a [national pollution pricing system](#) further underscores its commitment to combating climate change.

Recognizing climate change as a global responsibility, Canada collaborates internationally and supports vulnerable nations, such as joining the [Global Methane Pledge](#). Moreover, Canada works with different levels of governments, implementing initiatives like the [2030 Emissions Reduction Plan](#), [Canada's National Adaptation Strategy](#), and the [Green Municipal Fund](#).

Furthermore, prioritizing SDG 13 aligns with Canada's broader sustainable development goals. By addressing climate change, Canada also promotes clean energy, green jobs, circular economy practices, biodiversity preservation, and public health, demonstrating a holistic approach to sustainability ([VNR 2023](#)). Thus, prioritizing SDG 13 not only mitigates climate change but also contributes to achieving various other sustainable development objectives.

### 3.3 SDG4 (Importance 8)



The SDG 4 is one of the 5 priority areas the Canadian government is focusing on in the 2023 Voluntary National Review. The government aims to provide Canadians with the opportunity for lifelong learning through inclusive and quality education programs. Even though Canada has a highly educated population with a high school completion rate of over 82%, equity issues remain a challenge for the system, especially in the Canadian North. Indigenous people have a lower rate of high school completion and youth with disabilities find it difficult to continue their education citing their disability as a barrier. Canada has taken several steps to overcome these challenges through several initiatives, including access to high-quality, affordable, and inclusive childcare through [Early Learning and Childcare program](#) with goals of reducing fees for regulated childcare for children under the age of six to 10\$ a day. Other programs like the [Canada Student Financial Assistance](#), [Canada Apprentice Loan](#), and [Apprenticeship grants](#) further assists students who are struggling to take up post-secondary studies. The government is also seeking to work with indigenous communities to enhance opportunities for indigenous youths to pursue their post-secondary learning goals by creating a [Task Force on Northern PSE](#) in 2020. Through programs like the [Canada Service Corps](#), the government can support NGO's that remove barriers and provide participants from under-served communities with necessary skills and leadership experience. The Canadian national framework tracks the high school completion rate and the post-secondary education rate to assist Canada in achieving their goals for this SDG.

### 3.4 SDG17 (Importance 8)



Canada prioritizes SDG 17 due to its commitment to fostering collaboration and partnerships both domestically and internationally to advance the SDGs ([VNR 2023](#)). The Canadian government recognizes that partnerships are crucial for achieving the 2030 Agenda and its 17 SDGs, working closely with civil society organizations, the private sector, and multilateral organizations. Initiatives such as the [SDG Funding Program](#), [Social Innovation and Social Finance Strategy](#), and the [Social Development Partnerships Program](#) demonstrate Canada's dedication to strengthening partnerships and financing initiatives aligned with the SDGs.

Moreover, Canada's international actions, such as its commitment to increasing [official development assistance](#) and its engagement in global financing for development initiatives, reflect its efforts to support sustainable development worldwide. Canada's leadership role in innovative development finance, its contributions to the [International Monetary Fund](#)'s efforts to address global economic challenges, and its involvement in promoting an inclusive and resilient global economic system underscore its commitment to SDG 17.

Additionally, Canada's collaborative approach extends to fostering partnerships abroad to advance the SDGs, as evidenced by its engagement with international, regional, and local partners to achieve development impact for the poorest and most vulnerable populations. Through initiatives like [Inspiring Action for Global Citizenship](#) and Prime Minister Trudeau's role as Co-chair of the UN Secretary General's [SDG Advocates](#), Canada demonstrates its commitment to working with stakeholders to raise awareness and drive action towards achieving the SDGs.

### 3.5 SDG7 (Importance 7)



Canadians are considered one of the largest consumers of energy in the world on a per-capita basis and the government of Canada aims to reduce their energy consumption while ensuring Canadians have access to clean and renewable energy and play its role in supporting the goals of SDG 7. The government has taken up several initiatives to achieve this goal, including a [Smart Renewables and Electrification pathway](#) program to support 73 smart renewable energy and grid modernization projects. In its 2023 budget, the government announced that it would allocate \$3 billion over the next 13 years to Natural Resources Canada along with a commitment to produce 90% of its electricity from non-GHG emitting sources and a net-zero electricity system by 2035. The government is also collaborating with industry stakeholders through [Clean Fuels Fund and Critical Minerals strategy](#). [Canada's Emission Reduction Plan](#) provides the roadmap for Canada to achieve net-zero emissions by 2050 by investing in clean and affordable energy and investing in improved energy efficiency in Canadian homes, buildings, and industries. Canada is also investing in various research programs like the [Energy innovation Program](#), green infrastructure research, development and demonstration, and the [energy research and development program](#) to advance the development and deployment of innovative technologies to accelerate the transition to cleaner energy sources. In 2022, Canada established the [Regional Energy and Resources Table](#) as a partnership between the federal, provincial, territorial governments along with indigenous partners to identify and accelerate opportunities for transforming traditional industries and advancing emerging ones to achieve a net-zero future. Clean and affordable energy is an essential plan of Canada to decarbonize the economy and achieve Canada's net-zero aspirations. The Canadian Indicator Framework uses 3 indicators that measures the per capita energy consumption, proportion of electricity generated from non GHG emitting sources, and the annual energy savings from adoption of energy efficiency codes, standards, and practices to keep Canada on track to achieve their 2030 targets for this SDG.

### 3.6 SDG9 (Importance 6)



Canada aims to promote sustainable research and innovation to ensure Canadians have access to modern and sustainable infrastructure. Through continuous efforts, great progress has been made in this goal. Among them, Canada has dramatically increased the number of zero-emission vehicle charging and gas stations, while also increasing access to reliable, high-speed Internet, according to Natural Resources Canada. According to the [2022 Global Innovation Index](#), Canada ranks 15th in the world for its innovation ecosystem performance.

But in recent years the Canadian government has been spending less on research and development. According to the data from [OECD](#), the Gross domestic spending on R&D in recent 5 years was below the OECD average. In 2020 was 1.895%, which is highest during the recent 5 years. In 2021 was 1.697% and in 2022 was 1.553%. In this regard, there is still a need to increase investment, take advantage of Canada's advantages, and work with stakeholders to promote the development of sustainable industrialization.

### 3.7 SDG11 (Importance 6)



Canada is committed to achieving the Sustainable Development Goal (SDG) 11 by ensuring access to quality housing and fostering healthy, accessible and sustainable cities and communities.

Canada has implemented initiatives such as the [Canada's National Housing Strategy](#) in 2017, committing more than \$82- billion to improve housing accessibility. In 2019, Canada launched its [Emergency Management Strategy: Toward a Resilient 2030](#). The proportion of households living in core housing need through these policies decreased from 12.7% in 2016 to 10.1% in 2021.

Despite this progress, many challenges remain. The proportion of Canadians living in areas with [outdoor air pollutant](#) concentrations below or equal to the 2020 Canadian Ambient Air Quality standards increased from 63 per cent to 71% between the 2005 to 2007 and 2017 to 2019 reporting periods. To build sustainable cities, the Government of Canada works with provinces and territories to improve air quality through air quality management systems, including the establishment of [Canadian Ambient Air Quality Standards](#) to drive continuous improvements in air quality. Canada has also developed regulatory and non-regulatory measures to address air pollutant emissions from industry, vehicles, engines and fuels, and consumer and commercial products.

### 3.8 SDG12 (Importance 6)



Canada aims to achieve Sustainable Development Goal (SDG) 12 by promoting sustainable consumption and production patterns. Sustainable manner includes many ways, such as reducing emissions, one example is switching to EVs. The government's assessment shows progress, with more than 189,000 Canadians and businesses transitioning to Zero emission vehicles (ZEV)

through the iZEV program. The popularity of the ZEV has soared, with zero-emission new car purchases set to account for 8.2% by 2022, helped by government incentives. Another example for this goal is about the waste, according to data from [CCME](#), that is, as of 2014, the weight of all kinds of waste discarded per capita was 706 kg, and our target is to reduce 30% by 2030 and 50% by 2040.

At present, we have made some progress towards this goal, but without a more circular economy, Canada will not be able to meet growing demand or effectively support the clean energy transition. To advance a circular economy, [Canada's 2030 Emissions Reduction Plan \(2022\)](#) commits to working with partners across the country to explore the opportunities that greater circularity could offer in a Canadian context.

## 4 Explanation of the Rationale of Municipal Rankings

### 4.1 Toronto (ON)

Toronto is the capital of Ontario, the largest city in Canada, home to 2.8 million residents whose diversity and experiences strengthen this great city ([Census, 2021](#)). The city's strategic priorities include Maintain and create housing that's affordable, Keep Toronto Moving, Invest in people and neighbourhoods, and Tackle climate change and build resilience ([Toronto ESG Report 2024](#)). These priorities align closely with the SDGs:

SDG1: Toronto grapples with a poverty rate of 10.0%, the third highest among large urban centers, due to its high cost of living ([Census, 2021](#)). To combat poverty, the city has initiated comprehensive plans and programs, including the [Toronto Poverty Reduction Strategy](#), [Fair Pass](#) for transportation, and various housing plans such as HousingTO, alongside strategies tailored for seniors and children's services ([Toronto ESG Report 2024](#)).

SDG11: As a mega city, Toronto faces challenges in providing access to affordable housing and essential public services while also considering environmental impacts in urban planning. The city's [2024 Budget](#) protects core services and makes investments in affordable housing (\$126 million), transit (\$30 million) and community safety (\$44 million). To promote sustainable development and address housing issues, Toronto is the first municipality in Canada to establish a [Social Debenture Program](#) (\$235 million Social Bond in 2022) and the city also implemented a [Vacant Home Tax](#) in 2022.

SDG13: Toronto demonstrates a proactive stance in combating climate change through initiatives like the [TransformTO Net Zero Strategy](#), setting ambitious targets for achieving net-zero emissions by 2040. Additionally, the city has developed strategies such as the [Long-Term Waste Management Strategy](#), Biodiversity Strategy (2019), and Resilience Strategy, complemented by financial mechanisms like the [Green Debenture Program](#) (\$300 million green bond in 2022), enhancing environmental sustainability. Annual disclosure of environmental data to the Carbon Disclosure Project ensures transparency in tracking progress and managing risks associated with climate change ([Toronto ESG Report 2024](#)).

### 4.2 Montreal (QC)

Sustainable city is ranked 1<sup>st</sup>. The [Sustainable Montréal 2016-2020](#) is Montreal's 3rd sustainable development plan. It focuses on reducing greenhouse gas emissions, increasing [greening](#) and biodiversity, and transitioning to a green, circular, and responsible economy. At the same time, according to the report ([CONTRIBUTION OF SUSTAINABLE MONTRÉAL 2016-2020 TO THE 17 SDGs](#)), this plan can be linked to 10 collective targets in the SDG. This is why this goal has the highest priority.

Climate action is ranked 2<sup>nd</sup>. Montreal has adopted a Climate Plan ([Climate Plan 2020-2030](#)) featuring 46 measures to achieve the objective of becoming carbon-neutral by 2050. To succeed, the goal of Montreal is to reduce GHG emissions by 55% between now and 2030. The next decade will be crucial for achieving carbon neutrality by 2050. So, this goal has the second highest priority.

Poverty is ranked 3<sup>rd</sup>. According to the [data](#), the percentage of persons with low income was 17.2% in 2015 in Montreal, which is higher than the average in Canada (14.5%) and Quebec (13.5). Until 2021, the percentage is



5.7%, which is lower than the average in Canada (7.4%) but still higher than the average in Quebec (5.2%). So poverty is still a question in Montreal.

#### 4.3 Vancouver (BC)

The city of Vancouver is a progressive city that aspires to be a leader in combating climate change, promoting sustainable development, and is eager to tackle the challenges of the 21st century. Regarding SDG (Sustainable Development Goals) 7, the city is promoting neighbourhood energy systems using low-carbon neighbourhood energy centres as outlined in the [Greenest city 2020 action plan](#). The city is also aiming to reduce its carbon footprint by 80% from current levels by 2050 through a variety of actions aimed at buildings, transportation, waste, and cross-cutting actions.

In terms of SDG 11, the city has taken comprehensive measures like [resilient neighbourhood pilot programs](#), personal and family preparedness learning tools, adaptation strategies, and built guiding principles based on reconciliation, equity and intersectionality, sustainability, recovery, and reciprocity. Overall, the city has focused on fostering resilience at multiple scales through preparing neighbourhoods, being proactive, collaborative, and promoting safe and adaptive infrastructure. The city has approved the [Resilient Vancouver Strategy](#) in 2019, Vancouver's [sea-level rise program](#), and [Rain City Strategy](#) to fight the impacts of climate change due to rising sea-levels and increased precipitation. The city is aware of the risks of earthquakes and rising sea levels and is focusing on climate robust infrastructure, climate resilient buildings, natural areas and green spaces, community preparedness, and coastal preparedness.

In terms of SDG 13, the city has a [zero-waste 2040 strategic plan](#) and has already reduced their annual solid waste disposed to landfill by over 36% when compared to 2008 levels. [Single-use Item reduction strategy](#) along with an outreach and education program to engage with communities to foster positive and sustainable behaviour change towards the goal of zero waste. The city has implemented a [Urban Forest Strategy](#) to double tree density in neighbourhoods, a [Climate Change Adaptation Strategy](#), [Climate 2050 Strategic plans](#) that sets out a 30-year vision and goals for Metro Vancouver's climate policy and actions.

#### 4.4 Edmonton (AB)

Edmonton is another city working towards contributing to the various SDG (Sustainable Development Goals) set out by the UN through tackling its own challenges. Edmonton has a strong focus on SDG1 through its [EndPovertyEdmonton](#) plan that aims to lift over 10000 people out of poverty in 5 years. The city aspires for true reconciliation with indigenous people, justice for all, and building momentum to end poverty by investing in a poverty free future through 35 priority actions for change over 5 years.

Regarding SDG 4, the city has developed the [Edmonton Community Development Action](#) plan to increase the number of post-secondary degree holders by focusing on anti-racism, equity and inclusion, and poverty elimination. The city also has the Edmonton Public Library Community program that supports indigenous cultural learning and celebrates local indigenous content online. Through its public schools, colleges, and universities like

the University of Alberta the city aims at fostering a culture of learning and collaboration to drive innovation and to stay competitive.

In terms of SDG 11, the city has one of the highest per-capita rates of emission in the world and has an ambitious [Community Energy Transition Strategy](#) in place that aims at achieving net-zero GHG emissions by 2050. The city has passed the [climate resilience council policy](#) that aims to promote a climate resilient community with clean air, water, and natural and built environments that sustain long-term health and prosperity. The guiding principles the city has used to achieve these focuses on collaboration, equity, prosperity and accountability through science and evidence-based decision making. The city also believes in preserving and protecting the environment by establishing a permaculture system which promotes more circular use of resources, using underutilized or vacant lands for agriculture, and considering how city infrastructure systems can be designed to make use or emulate natural processes to manage sewage, stormwater, and other waste materials.

#### 4.5 Winnipeg (MB)

Winnipeg, as Manitoba's capital and largest city, plays a pivotal role in shaping the province's dynamics, with a population surpassing 50% of Manitoba's total populace according to [2021 Census](#). Notably, Winnipeg stands out as the first Canadian city to undergo a [Voluntary Local Review of Progress](#), showcasing its commitment to transparency and accountability through initiatives like "[MyPeg](#)", a robust data disclosure system. Winnipeg prioritized some SDGs, aligning with the city's long-term plan, [OurWinnipeg 2045](#).

SDG 1: 9.3% of Winnipeggers were living in poverty based on the market basket measure in 2021 ([MyPeg](#)), higher than Canadian average. Also, Winnipeg has the largest Indigenous population of all urban centres in Canada and their poverty rate even higher than the city average ([2021 Census](#)). Winnipeg's comprehensive anti-poverty efforts, including the [Poverty Reduction Strategy](#), [End Homelessness Winnipeg](#), and [SEED Winnipeg](#), demonstrate its dedication to uplifting vulnerable communities and creating a more inclusive society.

SDG 11: As Winnipeg experiences steady population growth ([MyPeg](#)), sustainable urban development becomes paramount ([VLR](#)). [OurWinnipeg 2045](#) has outlined city design and construction plans, but urban sprawl, infrastructure development, and access to essential services such as waste removal and public transportation remain significant concerns. Winnipeg's approach encompasses tailored housing policies for newcomers ([IRCOM](#)), and homeless individuals, alongside initiatives to promote alternative transportation modes like cycling ([Bike Winnipeg](#), [Winnipeg Trails Association](#)). The [Million Tree Challenge](#) demonstrates the city's commitment to environmental sustainability and resilience.

SDG 17: Recognizing the complexity of challenges, Winnipeg emphasizes collaboration and partnerships. Engaging with diverse stakeholders, including international organizations ([IISD](#)), governmental agencies (provincial and federal level) and non-profit organizations ([UWW](#)), the city leverages collective expertise and resources. Initiatives like the Winnipeg Metropolitan Region's [Plan20-50](#) exemplify its commitment to long-term regional planning and cooperative governance, fostering sustainable development and resilience.

#### 4.6 Halifax (NS)

Poverty is ranked 1<sup>st</sup>. In [2020 data](#), the poverty rate is 10.7% in Halifax which is higher than the rate in Nova Scotia(9.8%, the highest poverty rate in Canada). According to the [data shown in the HALIFAX PARTINERSHIP](#), the household income in 2022 is \$51,424, which was the lowest across ten cities(with St. John's, Quebec City, Montreal, Ottawa, Toronto, KCW, Winnipeg, Calgary, and Vancouver). The purchasing power in Halifax declined by 3.6%, with inflation outpacing income growth. The poverty issue is very important in Halifax, which is the highest priority.

Clean Energy is ranked 2<sup>nd</sup>. According to the data from [the report](#), in Canada, most cities' source of power is clean energy, like hydroelectric power, nuclear power, solar and wind. But in Halifax, the most of energy is from coal([31%](#)). Nova Scotia implemented the [Clean Power Plan](#), the goal is to reach 80% renewable energy and move off coal by 2030. The transition to cleaner energy is very important in Halifax.

Climate action is ranked 3<sup>rd</sup>. Halifax Regional Council unanimously adopted [HalifACT](#)( a transformational plan) to achieve a net-zero economy by 2050. At present, \$20 million in solar energy systems are installed through [Solar City](#), and one-third of [Regional Centre All Ages and Abilities Bike Network](#) is complete. Also, HalifACT capital initiatives received a total of [no more than \\$57.4 million](#) in funding in the budget 2024-25. So, Climate Action is also very important in Halifax.